

COTTAGERS' SELF HELP PROGRAM

ENRICHMENT STATUS OF LAKES

IN THE

SOUTHEASTERN REGION OF ONTARIO

1984



Ministry
of the
Environment

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Water Resources Assessment Unit
Technical Support Section
Southeastern Region
Ministry of the Environment

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ACKNOWLEDGMENT

The Ministry of the Environment (MOE) gratefully acknowledges all the volunteers whose efforts make our program a success. Each year more and more lakes are attaining an increasing number of years of enrollment in the program. In some cases the sampling has been carried out by a number of different people or associations independently. In other cases the continuity of participation has been the result of the coordinated efforts of a group of people or a particular association. We express our special appreciation to those individuals and Cottage Associations that have ensured a continuity of participation in the program for ten or more years. These Associations have been accorded special recognition by the presentation of commemorative plaques. At our Self Help Program banquet held in Kingston November 1984, The following volunteers received a plaque on behalf of their Association:

Mr. Jim Haddow, Baptiste Lake Association

Mr. E.L. Killian, Crowe Lake Property Owners Association

Mr. V. Palilionis, West Devil Lake Property Owners Association

Mrs. B. Tate, Salmon Trout Cottagers Association

Mr. J.H. Walter, Limerick Waterways Ratepayers Association

Two associations that were unable to arrange to have a representative attend the banquet but which also earned this recognition in 1984 were:

Mr. E.E. Bimm, Mink Lake Betterment Association

Mr. B. Carmichael, Glanmire Lake Cottagers Association

On the occasion of a previous Self Help Program banquet, similar presentations were made to the Battersea-Loughborough Association, the White Lake Water Quality Committee, and the Otty Lake Association.

REMERCIEMENTS

Le ministère de l'Environnement exprime sa reconnaissance envers tous les bénévoles qui contribuent au succès de notre programme. Chaque année, un nombre croissant de lacs sont analysés depuis un plus grand nombre d'années dans le cadre du programme. L'échantillonnage est effectué soit indépendamment par diverses personnes ou associations, soit par un groupe de personnes ou une association en particulier. Nous exprimons tout particulièrement notre reconnaissance envers les personnes et les associations de propriétaires de chalets qui participent au programme de façon continue depuis dix ans ou plus. Des plaques honorifiques ont été présentées à ces associations pour souligner leur contribution. Lors du banquet organisé par les responsables du programme Entraide, et qui a eu lieu à Kingston en novembre 1984, les bénévoles suivants ont reçu une plaque au nom de leur association :

M. Jim Haddow, Baptiste Lake Association

M. E. L. Killian, Crowe Lake Property Owners Association

M. V. Palilionis, West Devil Lake Property Owners Association

M^{me} B. Tate, Salmon Trout Cottagers Association

M. J.H. Walter, Limerick Waterways Ratepayers Association

Deux associations qui se sont vu décerner une plaque en 1984 n'ont pu envoyer leurs représentants au banquet. Ce sont :

M. E.E. Bimm, Mink Lake Betterment Association

M. B. Carmichael, Glanmire Lake Cottagers Association

Lors d'un banquet précédent organisé par les responsables du programme Entraide, des plaques ont été présentées à la Battersea-Loughborough Association, au White Lake Water Quality Committee et à la Otty Lake Association.

Abstract

During 1971 the Ministry of the Environment (MOE) initiated a Self Help Program to enlist the assistance of cottagers in monitoring lake water quality conditions. From a modest beginning, the program in Southeastern Ontario has been expanded to include 94 lakes during 1984. Most of these lakes have now been sampled for six or more years. These trend-through-time data are making an extremely valuable contribution towards the understanding of natural seasonal and yearly fluctuations in lake water quality conditions. This in turn will assist with the detection of any trends in water quality resulting from human activities.

This report presents the data for the 94 lakes sampled in Southeastern Ontario during 1984. The data are discussed in terms of within-season and between-year variabilities in algal productivity as reflected by chlorophyll concentrations.

In general, most of the lakes included in the 1984 program had excellent water quality conditions for recreational use although there were some exceptions in which an abundance of algae would have restricted recreational activities on the lake.

Chlorophyll concentrations were higher, in general, than during 1983, but were within the range of normal annual variability for the lakes. For lakes with 10 or more years data, only two, the west basin of Loughborough and Otty, had mean chlorophyll concentrations that exceeded a previously recorded mean values. It is thought that variations in sunlight, rainfall, flushing rates and nutrient runoff from the watersheds combined are largely responsible for "across-the-board" variations in productivity from year to year.

The rapidly expanding data base is now allowing the opportunity for a more thorough understanding of the water quality conditions of our lakes and the factors which influence these conditions. Continued participation in the Self Help Program is encouraged by the Ministry.

Trends in times must be established over a number of years, perhaps even decades. While man's activities may accelerate eutrophication, the process may be slow on the human scale of observation and impossible to detect without a long record of objective water quality measurements. The water quality and chlorophyll measurements provided by the Self Help Program will provide the necessary record against which any changes in water quality can be evaluated should they occur. In this respect all participants are encouraged to continue their participation during 1985.

Abstract

Le ministère de l'Environnement a lancé le programme Entraide en 1971 pour inciter les propriétaires de chalets à surveiller la qualité de l'eau des lacs. Le programme, qui a débuté de façon modeste, a été élargi dans le Sud-Est de l'Ontario; en 1984, 94 lacs faisaient l'objet d'échantillonnages, la plupart depuis au moins six ans. Ces données étalées dans le temps nous aident énormément à comprendre les fluctuations annuelles et saisonnières naturelles de la qualité des eaux lacustres. Cela nous aidera à déceler toute modification de la qualité de l'eau par suite de l'activité humaine.

Le présent rapport présente les données de 94 lacs qui ont fait l'objet d'échantillonnages dans le Sud-Est de l'Ontario en 1984. Les données sont analysées sous l'angle des variations saisonnières et annuelles dans la formation d'algues, exprimée en concentration de chlorophylle.

La qualité de l'eau de la plupart des lacs étudiés dans le cadre du programme de 1984 était généralement excellente à des fins récréatives; dans certains lacs, toutefois, la prolifération d'algues aurait limité les activités récréatives.

En général, les concentrations de chlorophylle étaient plus élevées en 1984 qu'en 1983, mais se situaient en-deça des limites annuelles normales pour ces lacs. Quant aux lacs ayant fait l'objet d'échantillonnages pendant au moins dix ans, seuls le bassin ouest du lac Loughborough et le lac Otty présentaient une concentration moyenne de chlorophylle supérieure à la moyenne enregistrée précédemment. On pense que les variations du degré d'ensoleillement, des pluies, du degré de chasse d'eau, et de l'enlèvement des éléments nutritifs par ruissellement dans les bassins hydrographiques sont responsables, dans une large mesure, des fluctuations générales de la production d'algues d'une année à l'autre.

Le développement rapide de la base des données nous permet désormais de mieux comprendre les fluctuations de la qualité de l'eau des lacs et les facteurs qui influent sur cette qualité. Le ministère encourage la participation continue au programme Entraide.

L'étude de l'évolution de la qualité de l'eau doit être étalée sur un certain nombre d'années, voire des décennies.

L'activité humaine peut accélérer l'eutrophisation, mais le processus peut être long à observer et impossible à déceler à moins de disposer de mesures objectives de la qualité de l'eau échellonnées sur une longue période. Les mesures de la qualité de l'eau et des concentrations de chlorophylle obtenues dans le cadre du programme Entraide fourniront les données qui permettront d'évaluer toute variation éventuelle de la qualité de l'eau. On encourage donc tous les participants à poursuivre leurs efforts dans le cadre du programme en 1985.

1.0 INTRODUCTION

Ontario has some 250,000 inland lakes and borders four of the five Great Lakes. Increasing amounts of leisure time, growing affluence, and the easy accessibility of lakes to urban centers of population have resulted in the extensive development of lakes with summer cottages and waterfront resorts and campgrounds.

Increased development and activity within the watershed of a lake can result in changes to the lake itself. The most common of these changes is an increase in the rate of supply of nutrients, specifically phosphorus and nitrogen, to the lake. The result of an increase in the nutrient supply may be an increase in the growth and abundance of aquatic plants and algae in the lake. Algae are microscopic green plants which along with other aquatic plants convert the radiant energy of sunlight to the chemical energy of plant tissue. This phenomenon is termed primary production. Increased primary productivity gives rise to increased numbers of organisms at all levels of the food chain up to and including fish. The overall increase in the biological productivity of a lake by the nutrient enrichment of its water is scientifically referred to as eutrophication.

A certain amount of nutrient enrichment is beneficial. Aquatic plants and algae provide food and shelter for fish. The fertilization of lakes and ponds to increase productivity is in fact a management technique employed in some countries to enhance fish production. In these countries, the production of fish as a food supply may be the most important use of water bodies. Although total fish production is increased with artificial fertilization, serious eutrophication in natural waters may produce a shift in fish species from more desirable sport fish such as lake trout, to less desirable coarse fish.

Most North Americans tend to look upon lakes as a recreational resource and an object of aesthetic beauty rather than a source of food and often regard the symptoms of advancing eutrophication as undesirable.

Increased amounts of algae cause water to become progressively more turbid with a corresponding reduction in water clarity. Weed beds interfere with nearshore aquatic activities such as swimming and boating. Increased amounts of algae may also increase water treatment costs where such lakes are used as a source of domestic supply.

In 1970, in response to the concerns of cottagers that shoreline development was causing a deterioration of water quality in recreational lakes, the MOE initiated a comprehensive recreational lakes water quality survey program. The program provides an inventory of the water quality conditions of our recreational lakes involving physical, chemical and biological evaluations with emphasis on defining their state of nutrient enrichment. To date, the program has involved detailed studies of approximately 250 lakes in Southeastern Ontario.

With the program in place to provide the initial data and evaluation of a lake's water quality, the desirability of a long term water quality monitoring program became evident. Such a program was, however, beyond the capability of the Ministry without assistance. For this reason, in 1971 the MOE introduced the Cottagers Self Help Program to enlist the assistance of cottagers, cottage associations, and others to make regular water clarity readings at their lakes, and to collect and submit samples of water to the Ministry for analysis of their algal content. The program commenced with sampling on 12 lakes across the province and has grown to include volunteers on 94 lakes in the Southeast Region alone in 1984.

The Southeastern Region includes Hastings, Prince Edward, and Renfrew Counties and extends eastward to the Ontario/Quebec border. It encompasses an area of 35,523 square kilometres and contains a population of 1.2 million people.

The 1984 enrollment consisted of 13 "new" lakes and 81 lakes that were carried over from the 1983 program (Table 1).

Table 1.0: Lakes Sampled in 1984 Self Help Program

<u>LAKE</u>	<u>COUNTY(S)</u>	<u>TOWNSHIP(S)</u>
1. Baptiste	Hastings	Herschel
2. Bark	Renfrew, Hastings Nipissing District	Jones, Bangor, Lyell, Wicklow
3. Bass	Leeds	Rear of Leeds & Lansdowne
4. Bennett	Lanark	Bathurst
5. Benson	Leeds	South Crosby
6. Big Gull (Clarendon)	Frontenac	Kennebec, Olden, Barrie, Clarendon
7. Big Rideau	Lanark, Leeds	S. Burgess, N. Burgess, S. Elmsley, N. Elmsley, Bastard
8. Birch	Frontenac	Bedford
9. Black	Frontenac	Olden
10. Black Donald	Renfrew	Brougham
11. Bobs	Frontenac	Bedford
12. Brule (Wensley)	Frontenac	Miller
13. Buck - North Bay	Frontenac	Loughborough, Bedford, Storrington
14. Burr ridge	Frontenac	Bedford
15. Canoe	Frontenac	Bedford
16. Charleston	Leeds	Front/Rear of Yonge & Escott, Rear of Leeds & Lansdowne
17. Chippego	Frontenac	Hinchinbrooke
18. Collins	Frontenac	Storrington
19. Consecon	Prince Edward	Hillier, Ameliasburg
20. Cranberry	Frontenac	Pittsburgh
21. Cronk	Frontenac	Loughborough
22. Crosby	Leeds	North Crosby
23. Crowe	Hastings, Peterborough	Marmora, Belmont

24. Davern	Lanark	South Sherbrooke
25. Dempseys (Virgin)	Renfrew	Bagot & Blythfield
26. Desert	Frontenac	Loughborough
27. Devil	Frontenac	Bedford
28. Diamond	Hastings	Herschel
29. Dickey	Hastings	Lake
30. Dog	Frontenac	Storrington
31. Eagle	Frontenac	Hinchinbrooke
32. Elbow	Frontenac	Hinchinbrooke
33. Faraday (Trout)	Hastings	Faraday
34. Farren (Farrell)	Lanark	South Sherbrooke
35. Gananoque	Leeds	Rear of Leeds & Lansdowne, Front of Leeds & Lansdowne
36. Glanmire	Hastings	Tudor
37. Golden	Renfrew	North Algona
38. Gould	Frontenac	Loughborough
39. Grippen	Leeds	Rear of Leeds & Lansdowne
40. Gunter	Hastings	Cashel
41. Hambly	Frontenac	Portland
42. Hay Bay	Lennox & Addington	Fredericksburgh
43. Horseshoe	Frontenac	Kennebec
44. Indian	Leeds	South Crosby
45. Joeperry	Lennox & Addington	Effingham
46. Killenbeck	Leeds	Rear of Leeds & Lansdowne
47. Kingsford	Frontenac	Bedford
48. Limerick	Hastings	Limerick
49. Little Cranberry	Leeds	Rear of Leeds & Lansdowne
50. Little Silver	Lanark	South Sherbrooke

51. Lost Bay (Gananoque River)	Leeds	Rear of Leeds & Lansdowne
52. Loughborough	Frontenac	Storrington, Loughborough
53. Lower Beverly	Leeds	South Crosby
54. Lower Rock	Frontenac	Storrington
55. Lyndhurst	Leeds	Rear of Leeds & Lansdowne
56. Mazinaw	Frontenac, Lennox & Addington	Abinger, Barrie
57. Mink	Renfrew	Wilberforce
58. Mississippi	Lanark	Drummond, Beckwith, Ramsay
59. Moira	Hastings	Huntingdon
60. Mosque	Frontenac	Miller, Clarendon
61. Mosquito	Leeds	South Crosby
62. Muskrat	Renfrew	Westmeath, Ross
63. McKay	Village of Rockcliffe Park	Regional Municipality of Ottawa-Carleton
64. Norway	Renfrew	Bagot & Blythfield
65. Olmsted (Jefferys)	Renfrew	Ross
66. Opinicon	Frontenac, Leeds	Bedford, Storrington, South Crosby
67. Otter	Frontenac	Loughborough
68. Otter	Leeds	Bastard, South Elmsley
69. Otty	Lanark	North Burgess, North Elmsley
70. Papineau	Hastings	Wicklow, Bangor
71. Paugh	Renfrew	Burns, Sherwood
72. Pike	Lanark, Leeds	North Burgess, North Crosby
73. Red Horse	Leeds	Rear of Leeds & Lansdowne
74. Robertson	Lanark	Lavant
75. St. Andrews	Frontenac	Hinchinbrooke
76. St. Peter	Hastings	McClure

77. Salmon Trout	Hastings	Monteagle
78. Sand	Leeds	South Crosby
79. Shabomeka	Frontenac	Barrie
80. Sharbot	Frontenac	Olden
81. Silver	Frontenac, Lanark	Oso, South Sherbrooke
82. Singleton	Leeds	Rear of Leeds & Lansdowne
83. Skootamatta	Lennox & Addington	Anglesea
84. Steenburg	Hastings	Tudor, Limerick
85. Stoco	Hastings	Hungerford
86. Sydenham	Frontenac	Loughborough
87. Temperance	Leeds	Rear of Yonge & Escott
88. Thirteen Island	Frontenac	Bedford, Hinchinbrooke, Loughborough, Portland
89. Troy	Leeds	South Crosby
90. Twin Sisters	Hastings	Marmora
91. West	Prince Edward	Hallowell
92. White	Lanark, Renfrew	Darling, Bagot & McNab
93. Whitefish	Leeds	South Crosby, Rear of Leeds & Lansdowne
94. Wollaston	Hastings	Wollaston

2.0 METHODS

For recreational lakes one of the most important and most easily measured water quality parameter is water clarity. Water clarity is determined by lowering a Secchi disc vertically into the water; the depth at which it disappears from view is a measure of water clarity. A Secchi disc is a circular steel plate 20 cm (8 inches) in diameter painted white and black in opposing quadrants (Figure 1).

Water clarity is affected by the amount of phytoplankton, i.e. microscopic algae, which inhabit a lake. As the amount of phytoplankton increases, the water becomes progressively more turbid and water clarity correspondingly declines. The amount of algae in a unit of water may be determined by enumerating the number of individual cells or algal colonies present under a microscope. However, this is a slow tedious procedure. To circumvent the need for labour intensive cell enumerations, a simpler method is employed. The amount of green pigment called chlorophyll a, which is a component of all green plants, is chemically measured. The amount of chlorophyll a in a sample of water is a measure of the amount of phytoplankton in the lake at the time of sampling.

Volunteers who contacted MOE to assist in the Self Help Program were provided with a sampling device, a Secchi disc, sample bottles and preservative, return shipping material including submission forms, and detailed sampling instructions. Each participant was assigned a sampling location usually at a central or open water site in the lake well removed from any localized shoreline influence. Samplers were instructed to undertake water clarity measurements weekly or bi-weekly during the ice-free season depending upon their availability at the lake.

Algae cease to grow in a lake because of insufficient light for photosynthesis at a depth approximated by twice the Secchi disc visibility depth. Water samples were collected at the same time as water clarity measurements were made by lowering a narrow-mouthed, one-litre bottle in a weighted sample bucket to twice the Secchi disc depth measurement, i.e. the lower limit of the zone of phytoplankton growth.

The speed of lowering and raising the sampler was regulated by trial and error repetition so that the bottle just filled as it reached the surface. In this manner a composite sample equally representative of all depths from the measured water column was collected. The samples were preserved immediately after collection with 0.5 ml (five drops) of one half percent magnesium carbonate suspension to minimize degradation of chlorophyll pigment and were delivered as soon as possible, usually within a day or two, to the MOE laboratory at Kingston via COD shipment.

Water samples were filtered using 1.2 micron filter paper, the residue extracted with 90% acetone and the chlorophyll a concentrations determined spectrophotometrically according to standard methods of the Ministry of the Environment.

The chlorophyll a values provide a close approximation of the algal population of a lake. In the following sections of this report the chlorophyll a values will be referred to simply as chlorophyll values.

Each sample was submitted with a Sample Submission Form which included information on the sampler and his address, the lake and location sampled, weather and water surface conditions, as well as the Secchi disc reading.

3.0 RESULTS AND DISCUSSION

Appendix I presents alphabetically the 1984 Secchi disc visibility depth and chlorophyll concentration measurement results for all 94 lakes. When available, information on the physical characteristics (surface area, depth), shoreline development (number of cottages and resorts) and water chemistry (phosphorus, nitrogen, alkalinity and colour) are also provided.

The physical characteristics of a lake and its basin play a major role in determining the productivity of its water. The size, geochemistry and land use activities within a watershed determine the nature and supply of nutrients received by a lake in runoff and drainage from the surrounding land area. Sedimentary watersheds are more readily weathered and contribute more nutrients in runoff than Precambrian watersheds. Cleared land contributes more nutrients than forested areas. The cultivation of soil and application of manure and fertilizers for agriculture increases the concentration of nitrogen and phosphorus in runoff. Lakes formed on agricultural areas in the sedimentary portion of the region tend to exhibit greater productivity as a group than lakes formed in the granitic Canadian Shield portion of the region.

In the absence of any agricultural runoff or point source inputs such as a sewage treatment plant or sewage lagoon discharge, the artificial supply of phosphorus to our recreational lakes originates principally as subsurface seepage of septic tank tile system effluent. However, increased nutrient supply may also be derived via increased erosion and runoff resulting from the change in the nature and intensity of land uses around the lake arising from shoreline development. As cottage development around a lake occurs, much of the ground cover is replaced by roads, yards, roof tops, parking lots and lawns. Rainfall that was once filtered through forested soils and shoreline vegetation discharges directly to the lake by sheet runoff and ditches. Although it was once considered "natural", it is now known that storm runoff from impervious surfaces may be heavily contaminated by

sediment particles, phosphorus and nitrogen, fertilizer residues, and animal excreta. Surface runoff from agricultural areas has the potential to carry large amounts of nutrients to lakes.

Airborne dust from bare agricultural fields and unpaved cottage roads may contribute to the supply of nutrients to a lake via atmospheric deposition directly on the lake's surface. Additionally, the resuspension of organically rich bottom sediments disturbed by bathing and other nearshore activities can redistribute nutrients back into the water column. They again become available for the growth of algae.

It is the concentration of phosphorus in a lake which determines biological productivity. Substantial variation exists between lakes in terms of their sensitivity to increases in nutrient supply. An identical increase in phosphorus supply to a group of lakes will not cause the same increase in their phosphorus concentration. The change in phosphorus concentration in a lake depends on dilution provided by both the lake volume and the amount of water exchange or its flushing rate. In general, small headwater lakes, because of their small volumes and low water exchange rates, are the most nutrient sensitive. Large lakes with rapid flushing rates are less sensitive to nutrient inputs.

3.1 Physical Characteristics of Study Lakes

The lakes range in surface area from 4700 hectares (Big Rideau Lake) to 10.6 hectares (McKay Lake in the Village of Rockcliffe Park) and in depth from 145 metres (Mazinaw Lake) to 3.6 metres (Little Cranberry Lake). The range of other physical characteristics: the shape, volume, length of shoreline, drainage area and flushing rate also vary greatly. Lakes are located for the most part within the granitic bedrock of the Frontenac Axis - a southward extension of the scenically rugged Canadian Shield - that passes through the Kingston-Gananoque area. Other lakes are located in basins formed wholly of sedimentary rock or like Charleston Lake on the contact zone between the Frontenac Axis and sedimentary bedrock.

3.2 Shoreline Development

The extent of shoreline development in terms of the total number of cottages, permanent residences, resort accommodation and campsites ranged from none on Joeperry Lake to over 1,000 units on Big Rideau, Mississippi and Mazinaw Lakes. Joeperry Lake is located entirely within the confines of Bon Echo Provincial Park. Big Rideau, Mississippi and Mazinaw Lakes, all large lakes, have an older and well established cottage development. While the shoreline development varies from no development to over 1,000 units, the development density exceeds one unit per hectare of water surface for only eight lakes. These are Big Gull (Clarendon), Black, the north basin of Dickey, Horseshoe, Olmsted, St. Peter, Silver and Wollaston Lakes.

On all lakes, cottage development contributes to the total supply of nutrients. The impact of a nutrient supply from shoreline development will, however, vary from lake to lake. A small lake with a limited water exchange can receive a significant proportion of its total phosphorus supply from shoreline development while a higher cottage development density on another lake might contribute only a minor proportion of the lake's total phosphorus supply. For this reason, a direct relationship between shoreline development density and the 'Self Help Program' water quality data is neither apparent nor expected. The eight lakes mentioned above with shoreline development densities greater than one unit per hectare of water surface area all share excellent water quality in terms of their Secchi disc readings and absence of problematic levels of algae. Poorer water quality conditions exist in other lakes with lower shoreline development densities.

Formulas are available which allow the Ministry to predict the sensitivity of lakes to nutrient inputs from shoreline development and/or the impact of further shoreline development on lake water quality. The 'Self Help Program' monitoring data provides an important base of measured water quality conditions against which the predictions of water quality can be compared.

The Southeastern Region of the Ministry of the Environment offers assistance to municipalities in determining the sensitivities of lakes to further nutrient inputs and the establishment of limits on the extent of shoreline development appropriate for water quality protection. Through this process the sensitivities of lakes to nutrient inputs can be identified and incorporated directly into official plans and zoning by-laws. The Ministry also routinely evaluates the potential water quality implications of proposed subdivisions and makes recommendations to the approvals agency concerning conditions (i.e. setbacks, minimum lot sizes, minimum lake frontage) appropriate for the protection of lake water quality.

The impact of existing shoreline development on lake water quality will vary from lake to lake depending on sensitivity; however, as a general principle, the Ministry encourages all cottagers to limit their inputs of phosphorus to lakes. The final section of this report recommends ways in which cottagers can limit nutrient inputs from their activities and protect the water quality of their lakes.

3.3 Water Chemistry Characteristics

3.3.1 Alkalinity

Alkalinity is a measure of the capacity of a lake to neutralize acidic inputs. It is therefore particularly useful in determining the sensitivity of a lake to acid rain. The table below ranks lakes according to their sensitivity on the basis of their total alkalinity (Acid Sensitivity Survey of Lakes in Ontario, 1983 Ministry of Environment Fact Sheet).

<u>Total Alkalinity</u>	<u>Sensitivity</u>
0 - 2 mg/l	Extremely sensitive
2 - 10 mg/l	Moderately sensitive
10 - 25 mg/l	Low sensitivity
Greater than 25	Definitely not sensitive

Most lakes in this study have alkalinity values greater than 10 mg/l. None of the lakes fell into the extremely sensitive category. There is no immediate threat of irreparable damage to the aquatic life of any of these lakes at present levels of acidic deposition in the Region.

3.3.2 Colour

Colour present naturally in surface waters is due to humic acids derived by the decomposition of vegetative material such as plankton, aquatic plants, terrestrial leaves, bark and trees.

Colour values ranged from 5 hazen units (numerous lakes) to 52 hazen units (Elbow Lake). The colour of Elbow Lake appears as a faint tea colour against the white background of the Secchi disc. Elbow Lake receives drainage from an extensive area of marsh and swamp and the colour is a reflection of that drainage. Colour affects the transmissivity of light in water. In Elbow Lake the colour may detract to some extent from the Secchi disc visibility. Colour does not detract from the water quality of a lake and a tea-coloured lake can have the same high quality as a clear lake. For the other lakes, colour is low and does not reduce the Secchi disc visibility depth. Water clarity in the other lakes is determined almost entirely by their algal content.

3.3.3 Phosphorus and Nitrogen

Phosphorus and nitrogen are only two among many nutrients essential for a balanced environment for aquatic growth. In most natural surface waters phosphorus and nitrogen are the major elements in the shortest supply relative to the requirements of plants and algae. If the nitrogen to phosphorus ratio is greater than 10:1, phosphorus is considered to be the limiting nutrient. With an ample supply of nitrogen, the availability of phosphorus limits primary productivity. If more phosphorus is supplied, there is increased biological activity and more algae are produced. With less phosphorus in the water, there is less algae.

For the study lakes for which nitrogen and phosphorus data have been collected, nitrogen to phosphorus ratios ranged from 11 in the west basin of Moira Lake to 61 in Davern Lake. Phosphorus is the limiting nutrient in these lakes.

3.4 Chlorophyll Levels

The seasonal mean chlorophyll concentration of 5 µg/l is a value below which seasonal means are considered indicative of the absence of nuisance levels of algae, and above which the seasonal mean may reflect the presence of nuisance levels of algae. The relationship between total phosphorus and the abundance of algae as measured by chlorophyll concentrations is illustrated in the table below which lists lakes with a mean phosphorus concentration greater than 30 µg/l.

Table 2: Illustration of relationship between total phosphorus (µg/l) and total chlorophyll (µg/l) concentrations

<u>Lake</u>	<u>Total P</u>	<u>Mean Chloro.</u>	<u>Maximum Chloro.</u>
Cranberry	30	6.7	20.9
Dog	33	18.2	55.6
Moir - east basin	39	10.6	19.8
- west basin	55	11.0	18.9
Muskrat	33	8.0	20.2
Pike	35	5.1	7.9
Stoco	38	16.7	24.4
Sydenham	34	2.8	5.1

Of lakes with a phosphorus concentration less than 30 µg/l, only five, Lower Beverly, Singleton, Troy and West had chlorophyll values greater than 5 µg/l as a seasonal average.

3.4.1 Seasonal Variability in Chlorophyll Levels

While it is apparent that algae growth is directly related to nutrient concentrations on a seasonal basis, it is also important to recognize that growth varies in intensity in different lakes at different times of the year depending upon variations in nutrient levels and other factors.

Farren and Cronk Lakes, for example, attained their highest chlorophyll concentrations in the spring and early summer during 1984, while a number of other lakes including Little Silver, Eagle, Buck and Moira peaked in the fall. The majority of occurrences of elevated chlorophyll concentrations, especially those which occurred for a prolonged period, developed during the summer months. Some examples of lakes with a marked seasonality in their chlorophyll levels are provided in Table 3.

Table 3: Examples of lakes where chlorophyll concentrations vary during different times of the year

	Lake	Mean chloro µg/l	Maximum chloro µg/l
spring peak	Farren	1.9	4.3 (May 21)
	Cronk	3.3	4.4 (June 10)
summer peak	Chippego	3.5	6.2 (July 31)
	Dog	21.2	55.6 (Aug. 19)
	Killenbeck	4.0	6.0 (Aug. 7)
	Lower Beverly	8.6	17.6 (Aug. 6)
	Muskrat	8.0	20.0 (Aug. 15)
	Stoco	16.7	24.4 (Aug. 28)
fall peak	Eagle	2.3	4.5 (Sept. 16)
	Moira	10.6	19.8 (Sept. 23)
	Buck	3.2	5.6 (Sept. 16)

Because of the seasonal variability in chlorophyll concentrations in some lakes, the duration and regularity of the sampling program can influence the results. Monthly means for chlorophyll concentrations and Secchi disc readings for Long Reach of Dog Lake and Muskrat Lake were as follows:

Month	Long Reach		Muskrat Lake	
	Secchi (m)	Chloro (µg/l)	Secchi (m)	Chloro (µg/l)
June	3.1	2.3	2.4	2.4
July	2.0	8.9	4.0	3.0
August	0.9	42.4	2.7	13.9
September	1.2	29.5	2.4	10.3
October			2.9	5.8

For these lakes a sampling program that concentrated most of the sampling effort into the spring season would have biased the results towards a lower value for chlorophyll while a program that was primarily restricted to late summer sampling would have biased the results towards a higher chlorophyll concentration. The results of a biased sampling program could be quite misleading. For example, the mean chlorophyll concentration for Muskrat Lake based on sampling just to the end of July is 2.8 $\mu\text{g/l}$. The mean chlorophyll concentration for only August and September is 12.9 $\mu\text{g/l}$. Each of the means is based on seven measurements. The actual mean for Muskrat Lake based on the 15 samples collected from June 10 to October 7 is 8.0 $\mu\text{g/l}$. This value is comparable to the results for 1983 and 1982.

Chlorophyll concentrations greater than 20 $\mu\text{g/l}$ coincide with periods of algal blooms. An algal bloom is the rapid growth and accumulation of algae that often accompanies a period of warm, calm and sunny weather in our more productive lakes. During a bloom, water clarity is reduced and under extreme conditions the lake may take on a pea soup, green appearance. Late summer and early fall algal blooms are a characteristic feature of Dog, Stoco, Moira and Muskrat Lakes.

High chlorophyll concentrations require an analysis of seasonal algae diversity to determine whether desirable algae representing a balanced although highly productive system or noxious forms such as blue-green algae predominate.

During 1984 a bloom on Stoco Lake prompted an investigation in response to complaints of adverse water quality conditions by a number of shoreline residents at the Greenwood Park Subdivision. Results of phytoplankton analyses identified large numbers of the blue-green algae Aphanizomenon and Anabaena. Both of these algae contain nuisance species that are notorious bloom formers. A comparison of chlorophyll concentrations and water clarity results collected in 1984 with past data for Stoco Lake shows that chlorophyll concentrations did not exceed limits experienced in previous years. The investigation concluded that the accumulating action of an onshore breeze at the same time as blooms occurred produced an acute localized nuisance. Recreational use of other areas of Stoco Lake were not adversely affected.

Table 4: Comparison of results for weekly and biweekly sampling of Burr ridge Lake

Date	Weekly results Chlorophyll ($\mu\text{g/l}$)	Biweekly results Chlorophyll ($\mu\text{g/l}$)
May 6	0.4	
May 20	0.5	0.5
May 26	1.0	
June 10	1.0	1.0
June 17	3.4	
June 24	0.7	0.7
July 8	4.0	
July 22	1.6	1.6
July 29	1.7	
August 8	1.8	1.8
August 20	1.8	
August 26	1.5	1.5
Sept. 3	1.6	
Sept. 9	3.0	3.0
Sept. 16	3.9	
Sept. 23	3.0	3.0
Sept. 30	2.1	
Oct. 6	2.5	2.5
Oct. 14	2.1	
Mean	1.98	1.73
Std. dev.	1.08	0.94
no.	15	9

It should be emphasized that peaks in algal biomass often appear only for a short period of time, sometimes only lasting a few days. Even a weekly sampling program may miss this situation. An example is provided by the data for Burr ridge Lake reproduced from Page A-18 in Table 4. Burr ridge Lake was sampled on a near weekly basis beginning May 6 until October 14. Peak chlorophyll concentrations approximately twice background levels occurred on three occasions - 3.4 $\mu\text{g/l}$ on June 17, 4.0 $\mu\text{g/l}$ on July 8, and 3.9 $\mu\text{g/l}$ on September 13. The overall seasonal mean chlorophyll concentration was 1.98 $\mu\text{g/l}$. If Burr ridge Lake had been sampled only bi-weekly (i.e. every other week) beginning May 20, each of those peaks would have been missed. The seasonal mean chlorophyll concentration would have been calculated as 1.73 $\mu\text{g/l}$ and the maximum detected chlorophyll concentration recorded as 3.0 $\mu\text{g/l}$. Obviously the more complete the data set, the more realistic the appraisal of water quality.

3.4.2 Spatial Variability in Chlorophyll Levels

A number of lakes in the program are represented by more than one sampling site. This is necessary for lakes that are comprised of two or more distinctly separate basins such as Loughborough, Moira, Twin Sister or Red Horse Lakes and for complex lakes that are comprised of a number of basins such as Bobs, Charleston or Mosque that may act independently from a water quality point of view.

In the case of Loughborough Lake, for example, the water quality of the west and east basin is distinctly different as illustrated by a comparison of the yearly mean chlorophyll values for the past ten years (Table 5).

Table 5: Comparison of water quality of east and west basins of Loughborough Lake based on yearly mean chlorophyll levels ($\mu\text{g/l}$)

Year	east basin chlorophyll	west basin chlorophyll
1984	3.5	2.8
1983	2.2	1.6
1982	3.1	1.4
1981	4.9	2.5
1980	5.1	2.5
1979	3.6	2.0
1978	3.6	1.8
1977	3.7	2.2
1976	2.1	2.5
1975	4.6	2.0
1974	2.7	2.0

The west basin of Loughborough Lake is very deep with a depth of 38.4 metres while the east basin has a maximum depth of 6.1 metres. The shallow east basin is more productive of algae than the west basin.

Even on relatively small single basin lakes, localized differences in chlorophyll levels occasionally occur. On June 26 the chlorophyll concentration on the west end of Temperance Lake was $9.8 \mu\text{g/l}$ while the mid lake chlorophyll concentration was $3.7 \mu\text{g/l}$. The elevated chlorophyll concentration at the west end of Temperance Lake was probably due to a short term accumulation of algae by wind drift or wave action.

3.4.3 Annual Variability in Chlorophyll Levels

Just as chlorophyll concentrations vary from day to day and week to week, concentrations can also vary from year to year. Table 6 summarizes information on Secchi disc and chlorophyll concentration measurements for lakes for which this data has been collected for five or more years.

One of the most obvious findings of the comparative summary in Table 6 is that, in 47 out of the 58 lakes (81%), chlorophyll concentrations were up from 1983 levels. For most of these lakes, the increase in chlorophyll concentration was accompanied by a corresponding reduction in water clarity.

Thanks to the dedication of so many individuals we are able to put annual variations in chlorophyll level and water clarity in perspective. In 1983, aquatic productivity in most lakes reached an all time low. In this context, it was not surprising and indeed we expected a general overall increase in chlorophyll concentrations in 1984. In 1984 water quality was poorer in terms of chlorophyll level and water clarity than in 1983. However, these parameters were within the range of normal annual variability in most of these lakes.

For lakes with a 10 or more year period of record, 1984 mean chlorophyll exceeded a previously-recorded mean value in only two lakes. These lakes were the west basin of Loughborough and Otty. The maximum chlorophyll concentrations were well below problematic levels. Secchi disc readings showed there has been no deterioration in water clarity over the period of record.

In most cases, annual variations in Secchi disc readings and/or chlorophyll concentrations are minor and can be attributed to year-to-year variations in sunlight, rainfall and runoff of nutrients from the watershed of each lake.

Since the volunteer nature of the Self Help Program depends upon the availability of cottagers at their lakes, it is not always possible to duplicate sampling programs from year to year. In part, the annual differences in chlorophyll concentration and water clarity may be due to differences in sampling regimes from one year to the next.

Table 6: Mean values for chlorophyll concentrations ($\mu\text{g/l}$) and Secchi disc visibility depths (m) for lakes in the 1984 Southeastern Region Self Help Program with 5 or more years data available

Lake		84	83	82	81	80	79	78	77	76	75	74	*	Mean
Baptiste	SD	3.8	4.2		4.0	3.5	4.5	4.3	4.0		3.2			4.0
	chl	1.6	1.1		2.6	3.0	1.8	1.6	2.0		2.1			2.0
Bark	SD	4.5	3.9	3.7	4.1				5.7					4.4
	chl	1.7	1.4	1.2	1.3				1.0					1.2
Bass	SD	6.6	6.5	6.0	5.9	6.5	4.7	5.9	6.6					6.0
	chl	1.7	0.8	1.2	1.7	2.1	1.7	1.5	1.0					1.4
Big Gull	SD	4.0	3.7	3.9				4.6	4.6		3.4			4.0
	chl	1.9	2.1	1.7				2.0	2.0	2.1	3.3			1.7
Big Rideau	SD	3.7	2.9		3.3		4.4	4.5	4.0	4.1	4.6			4.0
	chl	2.4	3.1		2.5		2.3	2.0	1.4	2.3	2.1			2.2
Black	SD	4.5	4.4	4.7	5.1		5.2	4.9	5.0	4.2				4.8
	chl	2.8	1.4	1.4	1.7		1.5	1.6	1.3	1.4				1.5
Bobs (Long Bay)	SD	3.0	2.2	2.6	3.9						5.3			3.5
	chl	2.1	2.8	2.9	3.1						2.4			2.8
Bobs (Mud Bay)	SD	2.5	2.8	3.2	2.9	3.5			3.8	3.5	4.0			3.4
	chl	3.5	2.7	4.0	4.0	4.9			2.5	4.0	5.1			3.9
Brule	SD	6.6	8.3	7.5	7.3	6.8	6.5			7.7				7.4
	chl	1.5	0.7	0.9	1.2	1.4	1.2			1.9				1.2
Buck (North Bay)	SD	3.9	4.7	3.9	4.1	3.8	3.0	3.9	3.5		4.3			3.9
	chl	3.2	1.7	2.1	2.4	3.1	3.7	3.3	2.3		2.6			2.7
Burridge	SD	4.1	5.6	4.7	4.4	4.5								4.8
	chl	2.0	1.2	0.7	1.7	2.4								1.5
Charleston	SD	3.6	4.5	4.0	3.7	4.3	4.1	3.8	3.9	3.8	4.4			4.1
	chl	2.4	1.8	2.7	3.6	2.5	2.5	1.9	2.2	3.8	3.0			2.7
Chippago	SD	3.3	3.2	3.1	3.2	3.1	3.1							3.1
	chl	3.5	2.6	2.7	3.6	5.2	4.0							3.6
Cranberry	SD	2.0	2.0		2.7	2.2	2.2	2.1	1.6	2.2				2.1
	chl	6.7	3.7		4.7	9.4	9.2	12.5	7.6					7.8
Crosby	SD	4.5	4.0	4.2	4.4	4.0					4.1	3.7		4.1
	chl	1.8	1.5	2.1	2.5	2.5					3.6	3.3		2.6
Crowe	SD	2.7	2.9	3.2	2.8	3.0	2.4	2.4		4.7			3.7	3.1
	chl	3.2	1.6	1.6	2.0	2.2	3.2	2.1		3.3			1.7	2.2

Lake		84	83	82	81	80	79	78	77	76	75	74	*	Mean
Davern	SD	5.2	5.3	5.0	4.7	5.1								5.0
	chl	1.7	1.3	1.1	1.9	1.1								4.0
Desert	SD	5.0	5.2	4.9	4.6	4.6	4.5	5.5	4.9		5.9			5.0
	chl	2.2	1.4	1.3	2.3	2.3	2.0	1.7	1.7		2.6			1.9
Devil	SD	5.2	5.7	5.7	5.3		4.1	5.3	4.8	5.2	5.3	5.6		5.2
	chl	2.2	1.5	1.8	2.3		1.7	1.9	1.7	1.5	2.2	1.6		1.8
Dickey (S. Basin)	SD	5.0	4.5		5.4	5.1				5.2			4.5	4.9
	chl	1.9	0.8		1.2	1.3				1.0			1.3	1.1
Eagle	SD	5.9	5.3	4.9	4.5	4.8	4.7		4.3		5.1			4.8
	chl	2.3	1.7	1.8	2.0	2.9	2.2		1.3		2.4			2.0
Farren	SD	4.8	4.9	5.0	5.7	5.2					4.7			5.1
	chl	1.9	1.2	1.3	1.6	2.2					2.0			1.7
Gananoque	SD	4.1	3.1	2.6	3.1	1.8	3.2	3.0	2.2					2.7
	chl	4.9	3.1	3.5	4.6	5.3	3.1	4.7	3.1					3.9
Grippen	SD	2.4	2.8	3.3	3.2	3.8	2.9	3.2	2.6	3.9	2.9			3.2
	chl	3.0	3.7	3.3	4.6	4.0	2.5	3.1	2.1	3.1	2.6			3.2
Gunter	SD	3.6	3.5	3.9	4.3	3.6			5.2					4.1
	chl	1.8	1.0	1.7	2.5	2.0			2.0					1.8
Indian	SD	3.7	4.0	4.3		3.5			3.6		4.6		4.2	4.0
	chl	2.5	1.5	2.2		3.0			2.0		3.6		2.0	2.4
Joeperry	SD	3.0		3.8	5.6		3.8	4.2	4.2	4.4				4.3
	chl	2.0		2.0	1.7		3.5	2.5	2.5	1.6				2.3
Limerick	SD	4.5	4.4	4.4		4.7	4.4	4.9	5.0	4.9	5.0			4.7
	chl	1.8	0.9	1.2		1.5	1.4	1.3	1.2	1.1	1.1			1.2
Little Silver	SD	3.9	4.3	4.4			3.6	5.3	4.0					4.3
	chl	2.7	1.4	2.1			4.6	2.6	4.4					3.0
Loughborough (E. Basin)	SD	2.9	3.6	2.8	2.9	3.2	3.3	3.0	2.8	3.4	2.4	2.7	2.7	3.0
	chl	3.5	2.2	3.1	4.9	5.1	3.6	3.6	3.7	2.1	4.6	2.7	3.3	3.5
Loughborough (W. Basin)	SD	5.2	5.5	6.0	6.4	4.8	4.0	3.9	3.4	4.5	4.2		4.0	4.7
	chl	2.8	1.6	1.4	2.5	2.5	2.0	1.8	2.2	2.5	2.0			2.1
Mazinaw	SD	4.0		3.5	4.7	4.6	5.2	5.0	4.9	5.3	5.7			4.9
	chl	1.5		1.2	1.2	1.7	1.4	1.0	1.2	1.2	1.1			1.2
Mink	SD	3.3			3.0	4.1	4.2	4.1	3.5	3.6	3.8			3.8
	chl	2.4			2.5	3.5	1.4	2.0	1.5	1.8	1.8			2.1

Lake		84	83	82	81	80	79	78	77	76	75	74	*	Mean
Mississippi	SD	3.1	2.8	2.6	2.5	2.7	3.9	4.1	3.4		2.5	3.6	4.3	3.2
	chl	3.9	1.6	3.6	4.9	3.0	2.1	2.0	1.8		9.1	2.0	2.2	3.2
Moirā (E. Basin)	SD	2.3	1.8	2.0	3.1			2.0	2.0			2.1		2.2
	chl	10.6	10.1	11.3	5.1			8.0	7.2			9.2		8.5
Moirā (W. Basin)	SD	2.0	1.8				1.9	2.0				1.7		1.8
	chl	11.0	4.6				6.5	8.1				9.2		7.1
Mosque	SD	5.2	5.4	5.0	5.6	6.0	5.6	5.5	5.2	6.3				5.6
	chl	1.8	0.9	1.4	1.4	1.6	1.4	1.7	1.7	1.8				1.5
Muskrat	SD	3.1	2.3	2.3	1.6		2.4	2.8	1.7					2.2
	chl	8.0	9.3	9.9	19.6		7.1	8.0	10.3					10.7
Olmsted	SD	5.4	6.7	6.2	5.7	5.4	6.3	6.0	6.3					6.1
	chl	2.7	1.1	1.2	2.0	2.6	1.2	1.5	1.4					1.6
Opinicon	SD	3.1	3.2	3.1	3.2	3.2	3.3	3.0	2.8		3.0			3.1
	chl	3.9	2.2	2.7	3.1	3.9	3.7	3.6	3.6		3.1			3.1
Otter	SD	3.0	3.2	3.1	3.1	2.7	3.1	3.3	3.0	3.2	3.4			3.1
	chl	2.1	1.4	1.5	2.1	2.3	2.3	2.0	2.1	2.4	1.6			2.0
Otty	SD	4.1	4.5	4.7	3.9	4.5	4.4	4.2	4.0	4.5	4.4	3.8	4.1	4.3
	chl	2.8	1.3	2.2	2.2	2.7	2.1	2.1	1.7	1.8	2.1	1.1	2.9	1.9
Paugh	SD	4.8	5.5	5.2	5.3	5.2			5.4					5.3
	chl	1.6	0.9	0.9	1.3	1.5			1.0					1.1
Redhorse	SD	3.0	3.8	3.0	3.0	3.4	3.4				3.7			3.4
	chl	4.8	2.7	3.0	5.2	6.1	4.4				4.0			4.2
Robertson	SD	6.6	5.8	6.4	6.7	5.9		6.4	6.5					6.3
	chl	1.6	0.8	0.9	1.0	2.3		1.5	1.3					1.3
St. Andrews	SD	3.1	3.5	2.8	1.7	1.8			1.8					2.3
	chl	3.6	2.3	2.6	8.2	10.5			6.8					6.1
St. Peter	SD	4.4	3.9			3.2	3.4	3.9	4.8	3.8				3.8
	chl	1.6	1.0			2.2	1.8	1.6	1.1	1.8				1.6
Salmon Trout	SD	3.6	3.9	3.7	3.5	3.3	3.2	4.2	3.7	3.4		3.7		3.6
	chl	2.7	3.1	2.4	3.7	11.7	7.4	5.0	4.1	6.6		1.4		5.0
Sharbot (W. Basin)	SD	4.3	4.4	4.5	4.7	4.3	4.3	4.8	4.2	4.1	4.4			4.4
	chl	2.6	1.8	1.8	2.1	2.4	2.1	1.8	1.7	2.0	2.7			2.0
Silver	SD	3.4	3.9	4.1	3.6	3.4	4.0	3.5	3.5		3.7			3.7
	chl	2.0	1.3	1.6	2.0	2.4	1.8	1.8	1.6		1.7			1.8

Lake		84	83	82	81	80	79	78	77	76	75	74	*	Mean
Steenburg	SD	3.8	4.3				4.5	4.3	4.7	4.6				4.5
	chl	2.4	1.6				2.1	2.0	2.0	1.6				1.9
Sydenham	SD	3.8	3.5			4.2	3.6	3.6	5.0					4.0
	chl	2.8	1.9			3.2	3.0	2.1	3.4					2.7
Temperance	SD	2.2	2.7	1.8	1.4	1.9	2.6	2.2	1.2	1.9				2.0
	chl	3.6	2.0	4.5	7.8	6.0	3.1	2.8	8.9	3.6				4.8
Troy	SD	2.4	2.0	2.4	2.9	2.3	2.0	1.9	1.7		2.1			2.2
	chl	5.3	7.1	5.6	4.2	6.7	8.0	7.4	6.9		6.2			6.5
Twin Sister (E. Basin)	SD	3.8	3.5	3.4	3.5	3.9								3.6
	chl	3.3	2.2	1.5	3.3	3.5								2.6
Twin Sister (W. Basin)	SD	3.5	3.5	3.6	4.4	3.9			3.6					3.8
	chl	3.1	1.7	2.2	1.9	2.9			1.9					2.1
White	SD	2.7	2.8	2.4	2.6	2.7	3.0	3.2	2.8	2.4	3.2	3.0	2.6	2.8
	chl	3.6	2.9	3.4	3.2	5.3	3.0	3.7	3.6	7.1	3.8	2.2	4.3	3.9
Whitefish	SD	2.3	2.9			2.6	3.0	2.7	2.6					2.8
	chl	3.4	4.3			3.8	2.6	3.4	4.4					3.7

* Data collected between 1970 and 1973

4.0 CONCLUSIONS AND RECOMMENDATIONS

In general most of the lakes had excellent water quality well suited for diversity of recreational uses. There were some exceptions - notably Dog, Moira, Muskrat and Stoco Lakes. In these lakes, reduced water clarity and periodically high chlorophyll concentrations suggested that recurring algal blooms and other symptoms of advancing eutrophy may restrict recreational activities on the lakes from time to time.

Because of the variable nature of chlorophyll concentrations, individual year-to-year differences in chlorophyll concentrations and Secchi disc readings do not indicate improving or deteriorating water quality conditions. Trends in time must be established over a number of years, perhaps even decades. While man's activities may accelerate eutrophication, the process may be slow on the human scale of

observation and impossible to detect without a long record of objective water quality measurements. The water quality and chlorophyll measurements provided by the Self Help Program will provide the necessary record against which any changes in water quality can be evaluated should they occur. In this respect all participants are encouraged to continue their participation during 1985.

In order to avoid the possible introduction of seasonal biases into the results, sampling should be carried out regularly and consistently (i.e. weekly or bi-weekly) throughout the season. A program should encompass at least the three prime summer recreational months of June, July and August and preferably extend over a longer season, depending upon the sampler's availability at the lake.

Cottagers who are located on lakes that are not currently enrolled in the Self Help Program, are invited to contact the Ministry of the Environment for advice and assistance in establishing a program. The establishment of a Self Help Program not only provides a mechanism to objectively monitor lake water quality, but it also provides a means to increase understanding about water quality and to develop a heightened environmental awareness concerning the protection of a lake, not only for the present generation, but for those to follow.

For advice or information on establishing a program write Self Help Program, Ministry of Environment, P. O. Box 820, Kingston, Ontario K7L 4X6 or phone (613) 549-4000.

5.0 PROTECTION OF THE LAKE

Of the few management options available for dealing with water quality problems the most effective is prevention. Nitrogen and phosphorus have been identified as critical elements in eutrophication. The nearshore region of a watershed contributes a disproportionate share of phosphorus and nitrogen relative to its area because of its proximity to the lake. It is important that cottagers and other waterfront

owners do everything possible to ensure that their activities do not allow these nutrients to reach the lake. Following is a list of suggestions:

- 1) New cottage construction and septic systems should be sited well back from the water. This practice allows algae-producing nutrients in runoff and seepage from tile beds to be absorbed by soil and vegetation. Setbacks have the additional advantage of preserving the scenic beauty of the shore by preventing development from intruding unnaturally on the lake.
- 2) Site preparation and building activities should be carried out in a manner which will minimize disruption to the soil and vegetation. All areas that are exposed during construction should be replanted as soon as possible to prevent runoff and erosion.
- 3) Sewage disposal systems must be constructed in compliance with Provincial Regulations and be properly maintained. Seepage of leachate from improperly located or malfunctioning septic tank fields is suspected of contributing significant quantities of phosphorus to some heavily cottaged lakes. Septic tanks should be pumped out every three years and the area over the tile bed should be grassed and left open to sun and wind to encourage evapotranspiration. If a problem with the system is apparent, for example ponding; or suspected; contact the local District Office of the Ministry of the Environment for guidance.
- 4) Minimize the quantity of water used for domestic purposes to avoid overloading the septic system. Dishwashers and automatic washing machines use large quantities of water. Moreover, a dishwasher detergent contains a high amount of phosphates which should be avoided for cottage use. Laundry should be taken to the city.
- 5) Do not fertilize lawns. Excessive fertilizer will wash off into the lake and may promote unwanted nuisance aquatic growths.

- 6) The shallow nearshore or "littoral" zone supports most of the plants and animal life found in the lake. Disruption of any part of this ecosystem threatens the entire cycle of life in the lake. In particular, habitat for fish and other wildlife may be destroyed. Before undertaking any shoreline activities such as dredging or filling, contact the Ministry of Natural Resources for advice. In fact, prior approval may be required under the Navigable Waters Protection Act or the Fisheries Act.
- 7) Retain a protective buffer of trees, shrubs and other ground cover between your cottage and the lake. Vegetation slows down runoff and filters contaminants from roads, patios, parking lots, and cottage roofs. During summer the vegetation uses nutrients which reach the ground water from septic tank systems.

In places where the natural vegetation has been removed, cottagers should plant new trees and shrubs to restabilize their shoreline.

The Ministry of Natural Resources (MNR) introduced a pilot shoreland revegetation project to Christie Lake near Perth in 1984. The program involves the active participation of cottage association members with their assistance in re-establishing shorelines with natural vegetation for the purpose of enhancing the lake environment.

The MNR would be pleased to provide a presentation on this program to interested associations during 1985. Please contact our Self Help Program co-ordinator for assistance in arranging for a presentation by MNR.

- 8) Remember that these efforts to protect the lake will result in increased enjoyment by all.

6.0 APPENDIX I

Individual lake water quality results summary sheets

Notation

Chloro = chlorophyll a
Secchi = Secchi disc visibility depth
Std. dev = standard deviation

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Baptiste LAKE	Hastings COUNTY	Herschel TOWNSHIP(S)
Watershed Area: 717	km ²	Shoreline : 62 km
Surface Area : 2125	ha	Cottages : 506
Maximum Depth: 31.4	m	Resorts : 15 (113)
Volume : 112.73	x 10 ⁶ m ³	% Crown Land: 50

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	14.3
Total Nitrogen (µg/l)	:	360	Colour	22

	<u>1984</u>	<u>1983</u>	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u> ¹	<u>1975</u>	<u>1974</u> ¹
Mean											
Secchi (m)	3.8	4.2	3.6	4.0	3.5	4.5	4.3	4.0	3.3	3.2	3.4
Min.											
Secchi (m)	3.4	3.8	3.2	2.7	3.1	3.7	3.5	3.2	3.0	2.4	2.2
Mean Chloro.											
(µg/l)	1.6	1.1	1.6	2.6	3.0	1.8	1.6	2.0	2.1	2.1	0.4
Max. Chloro.											
(µg/l)	2.6	1.6	1.7	8.6	7.5	3.6	3.1	4.0	2.6	2.7	0.5

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
North East Basin			Central Basin		
July 10	3.8	-	July 11	3.8	-
Sept. 9	3.4	1.2	July 23	3.8	2.6
Sept. 24	<u>4.0</u>	<u>1.2</u>	Sept. 10	3.8	1.7
			Sept. 24	3.5	1.8
Mean	3.73	1.20	Sept. 29	3.7	-
Std. dev.	0.31	0.00	Oct. 7	<u>4.3</u>	<u>1.0</u>
			Mean	3.82	1.78
			Std. dev.	0.26	0.66

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bark LAKE	Renfrew, Hastings COUNTY		Jones TOWNSHIP(S)	
Watershed Area:	2722	km ²	Shoreline :	90 km
Surface Area :	3799	ha	Cottages :	25
Maximum Depth:	87.5	m	Resorts :	2 (135)
Volume :	3324	x 10 ⁶ m ³	% Crown Land :	75

WATER CHEMISTRY 1977

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	4.1
Total Nitrogen (µg/l)	:	271	Colour	12

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.5	3.9	3.7	4.1	4.6			5.7			
Min.											
Secchi (m)	3.0	2.7	2.7	3.3	3.0			4.5			
Mean Chloro.											
(µg/l)	1.7	1.4	1.2	1.3	1.5			1.0			
Max. Chloro.											
(µg/l)	2.3	2.1	1.9	1.8	1.9			1.9			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 21	5.8	-			
July 5	4.2	1.3			
July 22	4.7	1.4			
Aug. 6	4.3	1.3			
Aug. 21	3.8	2.3			
Sept. 4	3.0	1.6			
Sept. 21	5.3	2.0			
Oct. 14	<u>4.6</u>	<u>1.8</u>			
Mean	4.46	1.67			
Std. dev.	0.87	0.38			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bass	Leeds	Rear of Leeds & Lansdowne TOWNSHIP(S)
LAKE	COUNTY	
Watershed Area: 12.7	km ²	Shoreline : 11.0 km
Surface Area : 290	ha	Cottages : 238
Maximum Depth: 22.6	m	Resorts : 1 (53)
Volume : 23.9	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	12	Alkalinity (mg/l)	83
Total Nitrogen (µg/l)	:	399	Colour	6

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	6.6	6.5	6.0	5.9	6.5	4.7	5.9	6.6			
Min.											
Secchi (m)	5.2	5.2	4.6	4.6	4.6	4.0	4.9	4.9			
Mean Chloro.											
(µg/l)	1.7	0.8	1.2	1.7	2.1	1.7	1.5	1.0			
Max. Chloro.											
(µg/l)	3.5	1.4	2.3	2.8	3.6	2.2	2.6	1.5			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 2	5.5	0.9			
June 10	5.2	1.0			
July 22	5.8	-			
July 26	6.4	1.8			
July 29	6.4	1.4			
Aug. 6	6.7	1.8			
Aug. 12	7.0	1.5			
Aug. 15	5.2	3.5			
Aug. 26	5.8	2.0			
Sept. 3	7.9	1.5			
Sept. 23	8.2	1.3			
Oct. 28	8.5	-			
Mean	6.55	1.67			
Std. Dev.	1.15	0.73			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bennett LAKE		Lanark COUNTY		Bathurst TOWNSHIP(S)	
Watershed Area:	260	km ²	Shoreline	:	35 km
Surface Area :	513	ha	Cottages	:	165 + 1 house
Maximum Depth:	12.2	m	Resorts	:	2(13)
Volume :	17.67	x 10 ⁶ m ³	% Crown Land :	:	0

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	13	Alkalinity (mg/l)	82
Total Nitrogen (µg/l)	:	489	Colour	29

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u> ¹	<u>1978</u> ¹	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	2.1	2.9			3.3	2.7	3.3			3.0	
Min.											
Secchi (m)	2.0	2.3			2.4	2.0	2.3			2.0	
Mean Chloro.											
(µg/l)	6.5	5.4			4.4	6.2	4.6			5.1	
Max. Chloro.											
(µg/l)	10.7	10.6			6.4	12.6	4.9			9.5	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 22	2.0	4.3			
Aug. 19	2.3	4.6			
Sept. 16	<u>2.0</u>	<u>10.7</u>			
Mean	2.10	6.53			
Std. dev.	0.17	3.61			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Benson LAKE	Leeds COUNTY	South Crosby TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : 23.8 km
Surface Area : 517	ha	Cottages : 6 (1971)
Maximum Depth: 12.2	m	Resorts :
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	20	Alkalinity (mg/l)	80
Total Nitrogen (µg/l)	:	602	Colour	19

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m) 1 ³		3.0									
Min.											
Secchi (m) 1 ³		1.7									
Mean Chloro.											
(µg/l)	2.2	2.4									
Max. Chloro.											
(µg/l)	5.1	4.7									

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

³ Secchi disc on bottom

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Bowden Bay					
May 27	1	2.0			
June 13	1	-			
June 20	1	5.1			
July 3	1	0.3			
July 12	1	2.5			
July 23	1	0.9			
Aug. 11	1	<u>2.2</u>			
Mean	1	2.17			
Std. dev.	0	1.66			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Big Gull (Clarendon)	Frontenac	Kennebec, Olden Barrie, Clarendon TOWNSHIP(S)
LAKE	COUNTY	
Watershed Area: 137	km ²	Shoreline : 89 km
Surface Area : 236	ha	Cottages : 280 (1974)
Maximum Depth: 26	m	Resorts : 10 (156)
Volume : 91.97	x 10 ⁶ m ³	% Crown Land : 25

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	15	Alkalinity (mg/l)	28
Total Nitrogen (µg/l)	:	401	Colour	20

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u> ¹	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	4.0	3.7	3.9		3.7	4.1	4.6	4.6	4.6	3.4	
Min.											
Secchi (m)	3.4	2.7	1.7		3.7	3.2	3.8	3.7	3.4	2.3	
Mean Chloro. (µg/l)	1.9	2.1	1.7		2.7	2.0	2.0	2.0	2.1	3.3	
Max. Chloro. (µg/l)	3.0	3.7	2.6		2.7	2.5	4.7	3.2	3.5	5.9	

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 13	3.4	0.6			
May 21	3.7	1.7			
June 3	3.8	1.2			
June 17	4.0	-			
July 2	5.2	-			
July 29	4.3	3.0			
Aug. 6	3.7	3.0			
Aug. 15	3.7	3.0			
Aug. 27	3.4	2.0			
Sept. 3	3.7	1.6			
Sept. 29	4.3	1.0			
Oct. 6	<u>4.4</u>	<u>1.7</u>			
Mean	3.97	1.88			
Std. dev.	0.51	0.87			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Big Rideau LAKE	Lanark, Leeds COUNTY	S. Burgess, N. Burgess, S. Elmsley N. Elmsley Bastard TOWNSHIP(S)
Watershed Area: 478.9	km ²	Shoreline : 172 km
Surface Area : 4700	ha	Cottages : 1063+12 houses
Maximum Depth: 95	m	Resorts : 12(621)
Volume : 799.97	x 10 ⁶ m ³	% Crown Land : 5

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	25	Alkalinity (mg/l)	94
Total Nitrogen (µg/l)	:	368	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.7	2.9		3.3		4.4	4.5	4.0	4.1	4.6	
Min.											
Secchi (m)	2.7	2.6		3.2		3.7	3.4	3.0	2.6	3.0	
Mean Chloro. (µg/l)	2.4	3.1		2.5		2.3	2.0	1.4	2.3	2.1	
Max. Chloro. (µg/l)	3.2	10.2		2.9		2.9	3.7	2.7	4.1	9.3	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
North Shore at Sand Island			Hudson Bay		
July 8	3.5	-	May 28	2.9	-
July 22	4.6	2.3	June 8	2.7	-
Aug. 19	3.8	3.2	July 1	4.3	-
Sept. 3	3.8	2.0	July 17	4.0	-
Sept. 16	4.6	2.7	July 31	3.0	2.4
Sept. 30	<u>4.3</u>	<u>1.6</u>	Aug. 14	3.4	2.7
Mean	4.10	2.36	Oct. 17	3.4	2.4
Std. dev.	0.46	0.62	Oct. 31	3.4	-
			Nov. 12	<u>3.7</u>	-
			Mean	3.42	2.5
			Std. dev.	0.52	0.17

Chlorophyll determinations of 7.8 µg/l on May 28 and 23.8 µg/l on June 8 were rejected as anomalous data values.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Birch LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 132	km ²	Shoreline : 16.9 km
Surface Area : 196	ha	Cottages : 8 (1971)
Maximum Depth: 45.7	m	Resorts : 0
Volume :	x 10 ⁶ m ³	% Crown Land : 70

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	8	Alkalinity (mg/l)	70
Total Nitrogen (µg/l)	:	337	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	4.4									5.6	
Min.											
Secchi (m)	3.4									3.7	
Mean Chloro.											
(µg/l)	2.8									2.4	
Max. Chloro.											
(µg/l)	3.6									3.3	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	3.5	2.4			
May 29	3.4	3.6			
June 6	4.3	2.5			
July 2	4.9	-			
July 8	4.3	3.0			
Aug. 16	<u>5.8</u>	<u>2.5</u>			
Mean	4.37	2.80			
Std. dev.	0.90	0.50			

Black LAKE	Frontenac COUNTY	Olden TOWNSHIP(S)
Watershed Area: 4.61 km ²	Shoreline : 3.6 km	
Surface Area : 40 ha	Cottages : 22 (1974)	
Maximum Depth: 21.0 m	Resorts : 1(6)+(191) Prov. Park	
Volume : 4.13 x 10 ⁶ m ³	% Crown Land : 60	

Total Phosphorus ($\mu\text{g/l}$) :		Alkalinity (mg/l)									
Total Nitrogen ($\mu\text{g/l}$) :		Colour									
	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.5	4.4	4.7	5.1	4.7	5.2	4.9	5.0	4.2		
Min.											
Secchi (m)	3.4	3.4	4.3	4.6	3.3	4.9	4.3	3.4	3.1		
Mean Chloro.											
($\mu\text{g/l}$)	2.8	1.4	1.4	1.7	2.1	1.5	1.6	1.3	1.4		
Max. Chloro.											
($\mu\text{g/l}$)	6.0	2.2	2.1	2.6	3.8	2.3	2.6	3.1	2.1		

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>
June 13	4.9	2.3			
June 27	4.9	6.0			
July 11	3.4	1.0			
July 25	4.3	2.2			
Aug. 8	4.6	3.1			
Aug. 22	4.0	2.3			
Sept. 5	<u>5.2</u>	<u>2.6</u>			
Mean	4.47	2.79			
Std. dev.	0.62	1.55			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Black Donald LAKE	Renfrew COUNTY	Brougham TOWNSHIP(S)
Watershed Area: 7393	km ²	Shoreline : km
Surface Area : 1550	ha	Cottages : 103
Maximum Depth: 44	m	Resorts : 2 (102)
Volume :	x 10 ⁶ m ³	% Crown Land : 20

WATER CHEMISTRY 1978

Total Phosphorus (µg/l)	:	12	Alkalinity (mg/l)	32
Total Nitrogen (µg/l)	:	311	Colour	14

	<u>1984</u>	<u>1983</u>	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.3	5.6	4.9				4.2				
Min.											
Secchi (m)	3.4	4.6	4.7				2.0				
Mean Chloro.											
(µg/l)	1.9	1.1	2.0				2.2				
Max. Chloro.											
(µg/l)	4.1	1.5	2.8				3.5				

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 10	3.4	2.0			
July 2	5.2	1.7			
July 8	4.3	4.1			
July 15	3.8	-			
July 29	6.1	1.7			
Aug. 12	6.1	1.3			
Aug. 19	6.7	1.9			
Sept. 3	5.8	1.3			
Oct. 7	5.8	1.4			
Oct. 21	<u>6.1</u>	<u>-</u>			
Mean	5.33	1.93			
Std. dev.	1.12	0.92			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bob's (West Basin) LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 256	km ²	Shoreline : km
Surface Area :	ha	Cottages : 158
Maximum Depth: 23	m	Resorts : 2 (14)
Volume :	x 10 ⁶ m ³	% Crown Land :
		Permanent Residences: 4

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	19	Alkalinity (mg/l)	48					
Total Nitrogen (µg/l)	:	435	Colour	15					
	<u>1984</u> ¹	<u>1983</u>	<u>1981</u>	<u>1980</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1972</u> ²
Mean									
Secchi (m)	4.3		3.2	3.2			3.4	3.9	
Min.									
Secchi (m)	3.4		2.7	2.7			3.2	2.9	3.5
Mean Chloro.									
(µg/l)	2.9		3.6	2.7			2.6	4.6	4.2
Max. Chloro.									
(µg/l)	4.0		6.0	4.6			3.8	8.5	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 25	3.4	3.6			
Aug. 8	5.5	2.5			
Sept. 16	4.0	4.0			
Oct. 17	4.1	1.5			
Oct. 29	<u>4.6</u>	<u>-</u>			
Mean	4.32	2.90			
Std. dev.	0.79	1.13			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bob's (East Basin) LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 351.32	km ²	Shoreline : 66 km
Surface Area : 927	ha	Cottages : 187
Maximum Depth: 23	m	Resorts : 3 (33)
Volume : 88.57	x 10 ⁶ m ³	% Crown Land: 2

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	23	Alkalinity (mg/l)	54
Total Nitrogen (µg/l)	:	500	Colour	10

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1972</u> ²
Mean											
Secchi (m)	5.0	3.9	4.2	3.6						5.0	4.1
Min.											
Secchi (m)	4.6	2.9	2.9	2.2						3.6	
Mean Chloro. (µg/l)	2.2	1.6	3.1	2.7						2.7	3.7
Max. Chloro. (µg/l)	3.3	2.2	5.5	4.0						3.5	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 31	4.6	1.9			
Aug. 16	5.2	1.2			
Aug. 27	5.2	1.8			
Sept. 24	5.2	3.0			
Sept. 13	<u>4.6</u>	<u>3.3</u>			
Mean	4.96	2.24			
Std. dev.	0.33	0.88			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bob's (East Basin) LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 351.32	km ²	Shoreline : 66 km
Surface Area : 927	ha	Cottages : 187
Maximum Depth: 23	m	Resorts : 3 (33)
Volume : 88.57	x 10 ⁶ m ³	% Crown Land : 2

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	23	Alkalinity (mg/l)	54
Total Nitrogen (µg/l)	:	500	Colour	10

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
<u>Long Bay</u>											
Mean											
Secchi (m)	3.0	2.2	2.6	3.9						5.3	
Min.											
Secchi (m)	2.0	1.5	2.3	2.4						4.6	
Mean Chloro.											
(µg/l)	2.1	2.8	2.9	3.1						2.4	
Max. Chloro.											
(µg/l)	4.9	8.0	4.4	4.7						3.7	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
<u>Long Bay</u>					
June 10	2.0	1.2			
July 2	2.7	0.8			
July 8	3.9	4.9			
July 15	2.1	-			
July 15	3.9	1.4			
July 22	4.4	1.5			
July 29	4.1	2.0			
July 29	2.3	2.2			
Aug. 12	2.9	2.4			
Sept. 3	2.1	2.3			
Oct. 22	<u>2.7</u>	<u>-</u>			
Mean	3.01	2.08			
Std. dev.	0.90	1.19			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bob's (Green Bay) LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 22	km ²	Shoreline : km
Surface Area : 534	ha	Cottages : 106
Maximum Depth: 26	m	Resorts : 5 (54)
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	12	Alkalinity (mg/l)	80
Total Nitrogen (µg/l)	:	411	Colour	7

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1975</u> ²	<u>1972</u> ²
Mean						
Secchi (m)	5.6		2.8	4.7	5.6	4.9

Min.						
Secchi (m)	5.0		2.3	3.0	3.7	

Mean Chloro.						
(µg/l)	1.8		1.7	1.7	2.4	2.2

Max. Chloro.						
(µg/l)	2.2		2.5	2.7	3.4	

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Aug. 20	5.0	2.0			
Aug. 20	5.9	1.7			
Sept. 4	5.5	2.2			
Oct. 4	<u>6.1</u>	<u>1.1</u>			
Mean	5.63	1.75			
Std. dev.	0.49	0.48			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Bob's (Mud Bay) LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 6.11	km ²	Shoreline : km
Surface Area : 202	ha	Cottages : 160 + 15 houses
Maximum Depth: 7.3	m	Resorts : 4 (62)
Volume : 6.4	x 10 ⁶ m ³	% Crown Land : 20

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	19	Alkalinity (mg/l)	62
Total Nitrogen (µg/l)	:	421	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	2.5	2.8	3.2	2.9	3.5			3.8	3.5	4.0	
Min.											
Secchi (m)	1.7	2.1	2.0	1.8	2.1			3.2	2.9	2.4	
Mean Chloro. (µg/l)	3.5	2.7	4.0	4.0	4.9			2.5	4.0	5.1	
Max. Chloro. (µg/l)	5.5	4.3	7.4	9.1	9.6			4.2	7.6	11.0	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 21	2.6	-			
June 27	3.0	3.2			
July 9	2.9	2.4			
July 19	2.9	2.3			
July 31	2.1	4.3			
Aug. 17	3.2	2.1			
Aug. 27	2.4	4.4			
Sept. 5	1.7	3.4			
Sept. 14	<u>2.0</u>	<u>5.5</u>			
Mean	2.53	3.45			
Std. dev.	0.51	1.20			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Brule (Wensley) LAKE	Frontenac COUNTY	Miller TOWNSHIP(S)
Watershed Area: 52.79	km ²	Shoreline : 26.6 km
Surface Area : 571	ha	Cottages : 85
Maximum Depth: 56.4	m	Resorts : 2 (32)
Volume : 126.65	x 10 ⁶ m ³	% Crown Land : 35

WATER CHEMISTRY 1976

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	44
Total Nitrogen (µg/l)	:	269	Colour	< 7

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	6.6	8.3	7.5	7.3	6.8	6.5			7.7		
Min.											
Secchi (m)	6.4	6.9	6.8	6.4	6.2	5.5			4.0		
Mean Chloro. (µg/l)	1.5	0.7	0.9	1.2	1.4	1.2			1.9		
Max. Chloro. (µg/l)	1.8	1.0	1.3	2.4	2.2	1.9			5.0		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
#1			#2		
Aug. 6	6.4	1.8	Aug. 24	7.0	1.7
Aug. 24	7.0	1.1	Sept. 3	<u>6.7</u>	<u>1.5</u>
Sept. 3	6.4	1.2			
Sept. 18	6.4	1.7	Mean	6.85	1.6
Sept. 19	6.6	1.5	Std. dev.	0.21	0.14
Sept. 20	<u>6.6</u>	<u>1.3</u>			
Mean	6.57	1.43			
Std. dev.	0.23	0.28			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Buck (North Bay)	Frontenac	Loughborough, Bedford, Storrington TOWNSHIP(S)
LAKE	COUNTY	
Watershed Area: 8.34	km ²	Shoreline : 15 km
Surface Area : 276	ha	Cottages : 77 (1976)
Maximum Depth: 32	m	Resorts : 1 (25)
Volume : 27.78	x 10 ⁶ m ³	% Crown Land : 10

WATER CHEMISTRY 1979

Total Phosphorus (µg/l)	:	13	Alkalinity (mg/l)	35
Total Nitrogen (µg/l)	:	356	Colour	7

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u> ²	<u>1978</u>	<u>1977</u>	<u>1976</u> ¹	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.9	4.7	3.9	4.1	3.8	3.0	3.9	3.5	3.2	4.3	
Min.											
Secchi (m)	2.9	3.2	3.2	3.0	3.4	2.5	3.2	3.0	2.3	3.1	
Mean Chloro. (µg/l)	3.2	1.7	2.1	2.4	3.1	3.7	3.3	2.3	3.5	2.6	
Max. Chloro. (µg/l)	6.0	5.8	3.9	5.4	4.5	6.4	6.1	3.2	4.6	4.0	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
<u>North End</u>			<u>South End</u>		
May 27	4.4	1.7	June 3	3.7	2.4
June 5	5.5	2.0	June 17	4.7	1.2
June 13	5.9	2.4	June 23	5.6	-
July 1	4.9	2.9	July 2	4.3	2.6
July 8	4.3	4.0	July 8	3.4	3.6
July 17	4.3	2.4	July 15	3.4	2.6
July 26	4.0	2.9	July 29	3.4	1.5
July 29	3.4	-	Aug. 12	2.9	3.6
July 31	3.7	3.7	Aug. 25	3.2	3.5
Aug. 6	4.0	4.3	Sept. 16	2.9	5.6
Aug. 12	3.7	3.8	Oct. 8	4.0	3.6
Aug. 18	3.5	4.7			
Aug. 25	3.0	3.9	Mean	3.77	3.02
Sept. 3	2.9	2.8	Std. dev.	0.82	1.26
Sept. 16	3.0	6.0			
Sept. 22	3.4	5.0			
Sept. 29	3.8	1.3			
Mean	3.98	3.36			
Std. dev.	0.84	1.29			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Burrige LAKE		Frontenac COUNTY		Bedford TOWNSHIP(S)	
Watershed Area:	4.53	km ²	Shoreline	:	6.9 km
Surface Area :	81	ha	Cottages	:	47 (1974)
Maximum Depth:	16.2	m	Resorts	:	0
Volume :	5.89	x 10 ⁶ m ³	% Crown Land :	:	0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	25	Alkalinity (mg/l)	108
Total Nitrogen (µg/l)	:	484	Colour	21

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.1	5.6	4.7	4.4	4.5						
Min.											
Secchi (m)	1.9	3.2	4.0	3.0	3.0						
Mean Chloro. (µg/l)	2.0	1.2	0.7	1.7	2.4						
Max. Chloro. (µg/l)	4.0	2.0	1.2	3.6	4.5						

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 6	3.8	0.4			
May 13	6.1	-			
May 20	3.7	0.5			
May 26	4.3	1.0			
June 10	-	1.0			
June 17	2.7	3.4			
June 24	2.3	0.7			
July 1	4.6	-			
July 8	4.7	4.0			
July 22	4.3	1.6			
July 29	4.7	1.7			
Aug. 8	4.6	1.8			
Aug. 20	1.9	1.8			
Aug. 26	4.6	1.5			
Sept. 3	4.3	1.6			
Sept. 9	3.7	3.0			
Sept. 16	4.3	3.9			
Sept. 23	4.3	3.0			
Sept. 30	4.0	2.1			
Oct. 6	3.5	2.5			
Oct. 14	<u>6.1</u>	<u>2.1</u>			
Mean	4.13	1.98			
Std. dev.	1.04	1.08			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Canoe LAKE		Frontenac COUNTY		Bedford TOWNSHIP(S)	
Watershed Area:	24	km ²	Shoreline	: 20	km
Surface Area :	291	ha	Cottages	: 25	
Maximum Depth:	47	m	Resorts	: 2(63)	
Volume :	66.7	x 10 ⁶ m ³	% Crown Land :	0	

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	71.5
Total Nitrogen (µg/l)	:	285	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	6.9	7.9				6.0				8.2	
Min.											
Secchi (m)	5.2	7.3				4.2				5.8	
Mean Chloro. (µg/l)	1.3	1.0				1.4				1.8	
Max. Chloro. (µg/l)	1.9	1.5				4.3				2.6	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 10	5.2	0.7			
June 17	5.8	1.8			
July 15	7.6	1.0			
July 22	7.6	1.6			
July 29	7.9	1.2			
Aug. 6	6.4	1.9			
Aug. 19	6.4	1.2			
Aug. 26	7.3	1.3			
Sept. 3	7.6	1.4			
Sept. 9	<u>6.7</u>	<u>1.1</u>			
Mean	6.85	1.32			
Std. dev.	0.90	0.37			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Charleston: Big Water

Leeds

Rear of Leeds &
Lansdowne,
Front/Rear of
Yonge & Escott
TOWNSHIP(S)

LAKE	COUNTY		
Watershed Area:	300 km ²	Shoreline	: 152 km
Surface Area :	2517 ha	Cottages	: 627 + 63 houses
Maximum Depth:	91 m	Resorts	: 3(40)+(227) Prov. Park
Volume :	437 x 10 ⁶ m ³	% Crown Land:	20

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	17	Alkalinity (mg/l)	99
Total Nitrogen (µg/l)	:	457	Colour	19

	<u>1984</u> ²	<u>1983</u> ²	<u>1982</u> ²	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ¹	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.8	4.3	3.6	3.8	4.1	3.5	3.7	4.0	3.9	4.4	
Min.											
Secchi (m)	2.5	2.9	2.3	3.0	2.7	2.4	3.0	2.4	3.7	3.1	
Mean Chloro.											
(µg/l)	2.7	2.1	3.3	3.9	2.6	2.7	2.2	2.3	4.0	2.9	
Max. Chloro.											
(µg/l)	4.3	4.0	6.7	5.9	6.7	4.0	3.2	2.9	7.9	3.8	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 25	4.6	2.9			
July 3	4.0	2.7			
July 9	4.4	1.2			
July 16	4.4	-			
July 23	3.2	2.2			
July 30	3.5	2.6			
Aug. 7	3.2	1.9			
Aug. 13	3.5	4.2			
Aug. 20	5.0	2.4			
Aug. 27	<u>4.0</u>	<u>2.0</u>			
Mean	3.98	2.46			
Std. dev.	0.62	0.78			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Charleston:	Deep Water	Leeds		Rear of Leeds & Lansdowne, Front/Rear of Yonge & Escott TOWNSHIP(S)
LAKE		COUNTY		
Watershed Area:	300	km ²	Shoreline	: 152 km
Surface Area :	2517	ha	Cottages	: 627 + 63 houses
Maximum Depth:	91	m	Resorts	: 3(40)+(227) Prov. Park
Volume :	437	x 10 ⁶ m ³	% Crown Land :	20

WATER CHEMISTRY 1982

Total Phosphorus (µg/l)	:	15	Alkalinity (mg/l)	103
Total Nitrogen (µg/l)	:	340	Colour	14

	<u>1984</u> ²	<u>1983</u> ²	<u>1982</u> ²	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.8	4.3	3.6	3.6	4.3	3.7	3.7	4.0	3.8	4.4	
Min.											
Secchi (m)	2.2	2.6	2.5	3.0	3.2	1.8	3.0	2.6	3.2	3.0	
Mean Chloro. (µg/l)	3.0	2.0	2.8	4.2	2.4	2.4	2.3	2.2	3.8	3.0	
Max. Chloro. (µg/l)	4.8	3.7	4.6	6.3	4.9	4.0	3.2	3.1	6.7	4.1	

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 25	4.0	2.6			
July 3	4.0	2.2			
July 9	4.4	-			
July 16	4.4	-			
July 22	3.2	3.1			
July 30	3.5	3.3			
Aug. 7	3.5	4.8			
Aug. 13	3.5	3.6			
Aug. 20	5.0	3.2			
Aug. 27	<u>4.3</u>	<u>2.8</u>			
Mean	3.98	3.20			
Std. dev.	0.56	0.78			

Chlorophyll value at 12.6 µg/l on July 9 was rejected as an anomalous data value

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Charleston: Goose Island

Leeds

Rear of Leeds &
Lansdowne,
Front/Rear of
Yonge & Escott
TOWNSHIP(S)

LAKE	COUNTY		
Watershed Area: 300	km ²	Shoreline	: 152.2 km
Surface Area : 2517	ha	Cottages	: 627 + 63 houses
Maximum Depth: 91.1	m	Resorts	: 3(40)+(227) Prov. Park
Volume : 437.0	x 10 ⁶ m ³	% Crown Land	: 20

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	98
Total Nitrogen (µg/l)	:	438	Colour	16

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.4	4.4	4.1	3.6	4.2	4.2	3.9				
Min.											
Secchi (m)	2.1	2.0	3.0	3.2	3.2	3.7	3.5				
Mean Chloro.											
(µg/l)	2.5	1.7	2.3	3.3	2.3	2.1	1.9				
Max. Chloro.											
(µg/l)	5.0	3.2	3.2	4.0	4.7	2.9	3.3				

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 25	3.7	2.2			
July 2	3.7	5.0			
July 9	3.8	2.1			
July 16	3.0	-			
July 22	2.1	2.4			
July 30	3.0	2.2			
Aug. 13	3.7	2.1			
Aug. 27	<u>4.0</u>	<u>1.3</u>			
Mean	3.38	2.47			
Std. dev.	0.63	1.17			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Charleston: Webster Bay

Leeds

Rear of Leeds &
Lansdowne,
Front/Rear of
Yonge & Escott
TOWNSHIP(S)

LAKE	COUNTY		
Watershed Area:	300 km ²	Shoreline	: 152.2 km
Surface Area :	2517 ha	Cottages	: 627 + 63 houses
Maximum Depth:	91.1 m	Resorts	: 3(40)+(227) Prov. Park
Volume :	437.0 x 10 ⁶ m ³	% Crown Land:	20

WATER CHEMISTRY 19

Total Phosphorus (µg/l) : Alkalinity (mg/l)
Total Nitrogen (µg/l) : Colour

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.5	4.5	4.4	3.7	4.4	4.4	3.9	3.6			
Min.											
Secchi (m)	2.3	1.7	3.2	3.2	3.4	3.7	3.4	2.9			
Mean Chloro. (µg/l)	1.9	1.5	2.5	3.5	2.6	2.1	2.2	2.2			
Max. Chloro. (µg/l)	2.5	2.6	3.5	4.4	5.7	2.9	3.1	4.4			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 25	4.6	1.9			
July 2	4.3	1.2			
July 9	3.7	2.1			
July 16	3.0	2.4			
July 22	2.3	1.7			
July 30	3.0	2.2			
Aug. 13	3.0	2.5			
Aug. 27	<u>4.1</u>	<u>1.4</u>			
Mean	3.50	1.93			
Std. dev.	0.80	0.47			

**Rear of Leeds
& Lansdowne
TOWNSHIP(S)**

COUNTY

km²
ha
m
× 10⁶ m³

Shoreline : 152.2 km
Cottages : 627 + 63 houses
Resorts : 3(40)+(227) Prov. Park
& Crown Land : 20

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour

1984 1983 1982 1981 1980 1979 1978 1977 1976 1975 1974

Secchi (m)	3.3	4.8	4.5	3.8	4.3	4.5	4.0
------------	-----	-----	-----	-----	-----	-----	-----

Secchi (m)	2.3	1.7	3.0	3.2	3.5	4.0	3.5
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1.8 1.9 2.6 3.7 2.8 3.1 2.0

2.2 3.2 4.3 4.5 6.0 6.8 2.7

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>
June 25	3.0	2.2			
July 2	4.0	1.6			
July 9	3.5	1.1			
July 16	3.0	-			
July 22	2.3	1.9			
July 30	3.0	2.2			
Aug. 13	3.0	2.0			
Aug. 27	<u>4.3</u>	<u>1.5</u>			
Mean	3.26	1.79			
Std. dev.	0.64	0.41			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Chippago LAKE	Frontenac COUNTY	Hinchinbrooke TOWNSHIP(S)
Watershed Area: 11.9	km ²	Shoreline : 7.9 km
Surface Area : 103	ha	Cottages : 57 (1983)
Maximum Depth: 18.3	m	Resorts : 1
Volume : 6.85	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	19	Alkalinity (mg/l)	24
Total Nitrogen (µg/l)	:	486	Colour	29

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.3	3.2	3.1	3.2	3.1	3.1					
Min.											
Secchi (m)	2.7	2.0	2.1	2.6	2.4	2.5					
Mean Chloro.											
(µg/l)	3.5	2.6	2.7	3.6	5.2	4.0					
Max. Chloro.											
(µg/l)	6.2	4.4	5.4	10.0	9.0	6.5					

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	2.7	4.6			
June 1	2.7	2.8			
June 7	3.0	3.2			
June 17	2.9	3.5			
July 2	3.7	1.5			
July 16	3.8	4.6			
July 31	3.8	6.2			
Aug. 12	3.5	2.2			
Aug. 21	3.7	2.0			
Sept. 3	3.0	2.8			
Sept. 27	2.9	4.6			
Oct. 15	3.2	3.6			
Oct. 22	<u>3.4</u>	<u>-</u>			
Mean	3.25	3.47			
Std. dev.	0.42	1.35			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Collins LAKE	Frontenac COUNTY	Storrington TOWNSHIP(S)
Watershed Area: 32	km ²	Shoreline : 16.8 km
Surface Area : 326	ha	Cottages : 65
Maximum Depth: 10.1	m	Resorts : 1 (4)
Volume : 13.64	x 10 ⁶ m ³	% Crown Land : 2

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	19	Alkalinity (mg/l)	105
Total Nitrogen (µg/l)	:	620	Colour	14

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.4	2.4			3.1		3.7				
Min.											
Secchi (m)	3.0	1.8			2.3		2.0				
Mean Chloro. (µg/l)	2.8	7.6			4.4		3.5				
Max. Chloro. (µg/l)	2.8	19.4			9.0		6.7				

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Aug. 26	3.7	2.8			
Sept. 6	<u>3.0</u>	<u>2.8</u>			
Mean	3.35	2.8			
Std. dev.	0.49	0.0			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Consecon LAKE	Prince Edward COUNTY	Hillier, Ameliasburg TOWNSHIP(S)
Watershed Area: 187	km ²	Shoreline : 18.4 km
Surface Area : 599	ha	Cottages : 89+88 houses
Maximum Depth: 16.8	m	Resorts : 10(146)
Volume : 42.0	x 10 ⁶ m ³	% Crown Land: 1

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	15	Alkalinity (mg/l)	141
Total Nitrogen (µg/l)	:	590	Colour	32

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.2	2.5			2.6						
Min.											
Secchi (m)	1.7	1.7			1.5						
Mean Chloro. (µg/l)	6.7	3.9			3.4						
Max. Chloro. (µg/l)	7.8	5.9			8.0						

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 15	2.3	-			
July 29	1.7	5.3			
Aug. 26	2.3	7.8			
Sept. 2	<u>2.3</u>	<u>7.0</u>			
Mean	2.15	6.70			
Std. dev.	0.30	1.28			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Cranberry LAKE	Frontenac COUNTY	Pittsburg TOWNSHIP(S)
Watershed Area: 774	km ²	Shoreline : 14.3 km
Surface Area : 650	ha	Cottages : 47
Maximum Depth: 5.5	m	Resorts : 1 (14)
Volume : 9.65	x 10 ⁶ m ³	% Crown Land: 0
		Campgrounds: 1 (49)

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	30	Alkalinity (mg/l)	79
Total Nitrogen (µg/l)	:	570	Colour	18

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.0	2.0		2.7	2.2	2.1	1.6	2.2			
Min.											
Secchi (m)	1.4	1.7		1.9	1.1	1.4	1.0	1.2			
Mean Chloro.											
(µg/l)	6.7	3.7		4.7	9.4	9.2	12.5	7.6			
Max. Chloro.											
(µg/l)	20.9	8.7		11.0	21	16.2	28.2	16.0			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 3	1.5	2.9			
June 10	2.7	5.1			
June 23	2.1	-			
July 6	2.1	3.0			
July 15	2.1	5.5			
July 21	2.1	1.8			
July 29	2.3	5.5			
Aug. 10	1.5	8.7			
Aug. 26	<u>1.4</u>	<u>20.9</u>			
Mean	1.98	6.68			
Std. dev.	0.43	6.13			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Cronk LAKE	Frontenac COUNTY	Loughborough TOWNSHIP(S)
Watershed Area: 1.6	km ²	Shoreline : 6.24 km
Surface Area : 38	ha	Cottages : 17
Maximum Depth: 21.3	m	Resorts :
Volume :	$\times 10^6$ m ³	% Crown Land : 0
		Permanent Residences: 16

WATER CHEMISTRY 1981

Total Phosphorus ($\mu\text{g/l}$)	:	18	Alkalinity (mg/l)	56.6
Total Nitrogen ($\mu\text{g/l}$)	:	380	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u> ¹	<u>1977</u> ¹	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.1			5.9		5.1	3.2	3.0			
Min.											
Secchi (m)	4.4			5.0		4.6	2.8	2.5			
Mean Chloro. ($\mu\text{g/l}$)	3.3			2.4		1.3	.60	4.3			
Max. Chloro. ($\mu\text{g/l}$)	4.4			3.2		2.3	0.7	6.6			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>
June 10	5.3	4.4			
June 17	5.6	-			
June 26	5.6	4.4			
July 2	5.9	3.0			
July 8	5.6	3.4			
July 22	4.6	3.1			
July 29	4.6	2.7			
Aug. 13	5.0	3.9			
Aug. 28	4.4	2.5			
Sept. 4	5.0	2.6			
Sept. 23	4.7	2.8			
Sept. 16	4.4	3.4			
Mean	5.06	3.29			
Std. dev.	0.53	0.68			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Crosby LAKE		Leeds COUNTY		North Crosby TOWNSHIP(S)
Watershed Area:	26.6	km ²	Shoreline	: 17.7 km
Surface Area :	263	ha	Cottages	: 158 (1974)
Maximum Depth:	19	m	Resorts	: 0
Volume :	21.68	x 10 ⁶ m ³	% Crown Land :	0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	54
Total Nitrogen (µg/l)	:	434	Colour	30

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u> ¹	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u> ²
Mean											
Secchi (m)	4.5	4.0	4.2	4.4	4.0	3.4				4.1	3.7
Min.											
Secchi (m)	3.7	3.0	3.6	3.6	3.2	3.0				2.3	
Mean Chloro. (µg/l)	1.8	1.5	2.1	2.5	2.6	4.7				3.6	3.3
Max. Chloro. (µg/l)	3.1	2.3	5.4	9.3	5.2	6.9				5.2	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 13	3.7	1.3			
May 21	4.6	0.6			
June 10	5.5	1.2			
June 17	-	1.4			
June 24	3.7	-			
July 2	4.9	1.7			
July 15	4.3	-			
Aug. 12	3.7	3.1			
Aug. 19	5.2	2.8			
Aug. 26	<u>4.9</u>	<u>2.3</u>			
Mean	4.50	1.80			
Std. dev.	0.69	0.86			

Chlorophyll value of 8.0 µg/l on July 9 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Crowe LAKE	Hastings COUNTY	Marmora TOWNSHIP(S)
Watershed Area: 1444	km ²	Shoreline : 21 km
Surface Area : 876	ha	Cottages : 328
Maximum Depth: 15.8	m	Resorts : 6(548)
Volume : 49.38	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1978

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	58
Total Nitrogen (µg/l)	:	398	Colour	26

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ¹	<u>1976</u>	<u>1975</u> ¹	<u>1974</u> ¹	<u>1972</u> ²
Mean												
Secchi (m)	2.7	2.9	3.2	2.8	3.0	2.4	2.4	3.9	4.7	4.7	4.7	3.7
Min.												
Secchi (m)	2.1	0.9	2.9	1.8	1.9	2.1	2.0	1.5	3.7	4.6	3.3	3.0
Mean Chloro. (µg/l)	3.2	1.6	1.6	2.0	2.2	3.2	2.1	3.0	3.3	2.7	1.2	1.7
Max. Chloro. (µg/l)	8.0	2.5	2.2	3.3	6.1	5.7	3.1	5.8	4.1	3.8	1.7	4.1

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 2	2.4	1.0			
July 9	2.6	-			
July 16	2.7	-			
July 22	2.1	1.4			
July 29	3.4	2.6			
Aug. 28	2.7	3.3			
Sept. 10	<u>2.9</u>	<u>2.8</u>			
Mean	2.69	3.18			
Std. dev.	0.41	2.52			

Chlorophyll value of 8.0 µg/l on July 9 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Davern LAKE		Lanark COUNTY		South Sherbrooke TOWNSHIP(S)	
Watershed Area:	2.4	km ²	Shoreline	:	4.1 km
Surface Area :	52	ha	Cottages	:	17
Maximum Depth:	25.1	m	Resorts	:	1 (15)
Volume :	6.01	x 10 ⁶ m ³	% Crown Land :		0

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	7	Alkalinity (mg/l)	110
Total Nitrogen (µg/l)	:	431	Colour	11

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.2	5.3	5.0	4.7	5.1						
Min.											
Secchi (m)	1.5	4.3	3.7	3.2	3.5						
Mean Chloro.											
(µg/l)	1.7	1.3	1.1	1.9	1.1						
Max. Chloro.											
(µg/l)	2.5	2.6	1.8	3.1	4.5						

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 10	4.9	-			
June 17	5.5	2.5			
July 1	7.3	1.3			
July 8	6.7	0.6			
July 15	6.1	-			
July 22	5.2	1.8			
July 29	5.2	1.9			
Aug. 6	4.9	1.9			
Aug. 12	1.5	2.1			
Aug. 26	5.5	1.9			
Sept. 3	4.6	1.7			
Sept. 9	5.2	1.1			
Sept. 23	4.3	1.9			
Oct. 8	5.2	2.0			
Oct. 13	<u>5.2</u>	<u>1.7</u>			
Mean	5.15	1.72			
Std. dev.	1.27	0.48			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Dempseys (Virgin)	Renfrew	Bagot & Blythfield
LAKE	COUNTY	TOWNSHIP(S)
Watershed Area: 13.8	km ²	Shoreline :
Surface Area : 46	ha	Cottages :
Maximum Depth :	m	Resorts :
Volume :	x 10 ⁶ m ³	% Crown Land : 35

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.0	5.7	5.5		4.2						
Min.											
Secchi (m)	3.7	4.3	4.6		3.2						
Mean Chloro. (µg/l)	2.4	1.3	1.2		2.4						
Max. Chloro. (µg/l)	3.0	1.8	2.4		3.0						

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 2	5.0	1.4			
July 22	5.2	1.9			
Aug. 12	5.4	2.5			
Aug. 19	5.3	-			
Aug. 26	5.2	2.6			
Sept. 4	4.9	2.5			
Sept. 9	3.7	3.0			
Oct. 14	<u>5.0</u>	<u>2.6</u>			
Mean	4.96	2.36			
Std. dev.	0.54	0.53			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Desert LAKE	Frontenac COUNTY	Bedford & Loughborough TOWNSHIP(S)
Watershed Area: 97	km ²	Shoreline : 28 km
Surface Area : 382	ha	Cottages : 71 (1976)
Maximum Depth: 68	m	Resorts : 3 (95)
Volume : 85.5	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	76
Total Nitrogen (µg/l)	:	339	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	5.0	5.2	4.9	4.6	4.6	4.5	5.5	4.9		5.9	
Min.											
Secchi (m)	3.4	3.2	3.5	3.7	3.5	3.9	5.0	3.8		3.4	
Mean Chloro. (µg/l)	2.2	1.4	1.3	2.3	2.3	2.0	1.7	1.7		2.6	
Max. Chloro. (µg/l)	3.5	2.4	3.6	8.0	4.2	2.4	2.7	2.4		3.5	

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Stn. 1			South Bay		
May 27	3.4	2.8	May 13	4.3	2.3
June 10	4.9	1.4	May 21	3.5	3.3
July 8	4.7	-	May 27	3.4	1.9
July 22	4.9	2.0	June 3	4.6	1.9
Aug. 3	5.2	2.3	June 10	4.9	2.4
Aug. 12	5.2	2.3	June 17	4.6	2.7
Aug. 12	5.2	2.3	July 4	4.9	-
Aug. 28	5.2	3.4	July 15	4.7	3.3
Sept. 9	5.5	2.4	July 25	4.9	1.9
Sept. 28	5.8	1.2	Aug. 6	5.2	1.8
Oct. 13	<u>6.1</u>	<u>1.4</u>	Aug. 19	4.9	1.7
Mean	5.1	2.15	Sept. 9	4.6	2.8
Std. dev.	0.69	0.68	Sept. 16	5.8	3.5
			Sept. 22	5.2	2.1
			Sept. 30	5.8	1.3
			Oct. 8	5.3	1.7
			Oct. 20	6.9	1.6
			Oct. 28	<u>6.1</u>	-
			Mean	4.98	2.26
			Std. dev.	0.85	0.67

Chlorophyll determination of 12.4 µg/l on July 4 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Devil LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 174	km ²	Shoreline : 36.2 km
Surface Area : 1061	ha	Cottages : 220 + 3 houses
Maximum Depth: 45	m	Resorts : 4 (51)
Volume : 152.39	x 10 ⁶ m ³	% Crown Land : 20

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	70.5
Total Nitrogen (µg/l)	:	283	Colour	11

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u> ²
Mean											
Secchi (m)	5.2	5.7	5.7	5.3	4.6	4.1	5.3	4.8	5.2	5.3	5.6
Min.											
Secchi (m)	4.4	5.2	5.0	3.8	4.6	3.7	4.7	4.1	4.5	5.2	4.9
Mean Chloro. (µg/l)	2.2	1.5	1.8	2.3	1.8	1.7	1.9	1.7	1.5	2.2	1.6
Max. Chloro. (µg/l)	3.6	2.3	2.3	4.2	1.8	3.8	3.4	3.0	2.3	4.7	2.4

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Hays Bay			Buce Bay		
May 30	4.4	1.4	May 30	4.6	3.1
June 21	5.8	1.9	June 21	5.6	2.2
July 8	5.3	-	July 8	5.8	-
July 15	5.3	2.9	July 15	5.5	2.4
Aug. 12	5.0	2.0	Aug. 12	5.2	2.1
Aug. 26	4.9	1.5	Aug. 26	5.2	1.6
Sept. 9	<u>4.7</u>	<u>2.1</u>	Sept. 9	<u>4.9</u>	<u>3.6</u>
Mean	5.06	1.97	Mean	5.26	2.5
Std. dev.	0.46	0.54	Std. dev.	0.42	0.73

SELF-HELP PROGRAM SOUTHEASTERN REGION 1984

Diamond LAKE		Hastings COUNTY		Herschel TOWNSHIP(S)	
Watershed Area:	32.7	km ²	Shoreline	:	10 km
Surface Area :	150	ha	Cottages	:	65 + 16 houses
Maximum Depth:	23.8	m	Resorts	:	1 (6)
Volume :	12.48	x 10 ⁶ m ³	% Crown Land :	:	60

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	12	Alkalinity (mg/l)	19
Total Nitrogen (µg/l)	:	333	Colour	12

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.1	6.0	5.2	5.3	4.3	4.9	5.1	5.4			
Min.											
Secchi (m)	4.3	5.2	4.3	4.3	3.4	4.6	3.7	4.5			
Mean Chloro. (µg/l)	1.4	1.0	1.2	1.0	1.3	1.3	1.0	1.1			
Max. Chloro. (µg/l)	1.5	1.4	1.3	1.2	1.8	1.4	1.2	2.5			

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 3	4.3	1.5			
July 17	5.5	-			
Aug. 7	5.2	1.4			
Aug. 28	4.9	1.2			
Sept. 21	<u>5.8</u>	<u>1.5</u>			
Mean	5.14	1.4			
Std. dev.	0.58	0.14			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Dickey (North Basin) LAKE	Hastings COUNTY	Lake TOWNSHIP(S)
Watershed Area: 49	km ²	Shoreline : km
Surface Area : 54	ha	Cottages : 73
Maximum Depth: 12.2	m	Resorts : 0
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	12	Alkalinity (mg/l)	59
Total Nitrogen (µg/l)	:	389	Colour	24

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1976</u> ²	<u>1975</u>	<u>1973</u>	<u>1972</u>
Mean											
Secchi (m)	4.8	4.2	4.9	5.3	4.5			5.0		4.5	4.4
Min.											
Secchi (m)	4.1	3.3	3.4	3.9	3.5			4.2		3.3	3.1
Mean Chloro. (µg/l)	1.9	1.1	1.2	1.3	1.3			1.1		1.3	1.4
Max. Chloro. (µg/l)	2.3	2.2	1.6	2.6	1.8			1.8		2.4	2.7

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 2	4.1	-			
July 22	4.4	-			
Aug. 8	5.2	1.7			
Aug. 13	5.3	2.3			
Aug. 20	<u>5.0</u>	<u>1.7</u>			
Mean	4.80	1.90			
Std. dev.	0.52	0.35			

Chlorophyll value of 12.7 µg/l on July 2 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Dickey (South Basin) LAKE	Hastings COUNTY	Lake TOWNSHIP(S)
Watershed Area: 5.46	km ²	Shoreline : km
Surface Area : 149	ha	Cottages : 24
Maximum Depth: 46.3	m	Resorts : 0
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 1976

Total Phosphorus (µg/l)	:	8	Alkalinity (mg/l)	60
Total Nitrogen (µg/l)	:	356	Colour	10

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1972</u> ²
Mean											
Secchi (m)	5.0	4.5		5.4	5.1				5.2		4.5
Min.											
Secchi (m)	3.5	3.8		4.2	3.2				4.4		3.5
Mean Chloro. (µg/l)	1.9	0.8		1.2	1.3				1.0		1.3
Max. Chloro. (µg/l)	3.4	1.6		1.8	1.6				1.8		2.4

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 28	3.5	3.4			
July 2	4.6	1.0			
July 22	4.7	1.2			
July 31	5.2	2.5			
Aug. 8	5.3	1.5			
Aug. 13	6.0	2.3			
Aug. 20	4.7	1.8			
Aug. 21	5.5	2.1			
Sept. 23	5.2	1.6			
Oct. 23	5.5	-			
Mean	5.02	1.93			
Std. dev.	0.69	0.74			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Dog LAKE	Frontenac COUNTY	Storrington TOWNSHIP(S)
Watershed Area: 62	km ²	Shoreline : 23 km
Surface Area : 471	ha	Cottages : 105
Maximum Depth: 49.7	m	Resorts : 2(78)
Volume : 39.90	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	33	Alkalinity (mg/l)	55
Total Nitrogen (µg/l)	:	643	Colour	10

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	1.8	2.0				1.9				2.8	
Min.											
Secchi (m)	0.6	0.7				1.0				1.5	
Mean Chloro.											
(µg/l)	18.2	10.3				9.4				8.7	
Max. Chloro.											
(µg/l)	55.6	25.2				17.2				25.0	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Long Reach			North Basin		
June 3	1.9	2.3	June 17	3.0	4.4
June 10	2.7	2.4	June 17	1.8	2.8
June 17	2.3	2.1	June 24	2.1	-
June 24	2.4	-	July 8	1.8	2.3
July 2	2.6	1.9	July 15	2.7	4.7
July 17	2.1	-	Aug. 26	0.9	45.1
July 23	1.7	9.6			
July 29	1.4	15.3	Mean	2.05	11.86
Aug. 6	1.2	46.2	Std. dev.	0.74	18.61
Aug. 12	-	31.0			
Aug. 19	0.6	55.6			
Aug. 26	0.9	36.9			
Sept. 3	1.2	29.5			
Mean	1.75	21.16			
Std. dev.	0.69	19.59			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Eagle LAKE	Frontenac COUNTY	Olden, Hinchinbrooke TOWNSHIP(S)
Watershed Area: 40.1	km ²	Shoreline : 41.4 km
Surface Area : 665	ha	Cottages : 135 + 1 house
Maximum Depth: 31.1	m	Resorts : 2
Volume : 67.2	x 10 ⁶ m ³	% Crown Land : 5

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	46
Total Nitrogen (µg/l)	:	368	Colour	9

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	5.9	5.3	4.9	4.5	4.8	4.7		4.3		5.1	
Min.											
Secchi (m)	4.0	3.8	4.1	3.2	3.9	3.8		3.7		2.8	
Mean Chloro.											
(µg/l)	2.3	1.7	1.8	2.0	2.9	2.2		1.3		2.4	
Max. Chloro.											
(µg/l)	4.5	2.6	3.0	3.1	4.2	3.3		1.7		3.5	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Northwest			North End		
June 25	6.2	3.4	June 2	4.0	1.7
July 2	6.2	2.0	June 12	4.3	2.4
July 8	5.9	1.1	June 17	5.8	1.7
July 24	6.2	1.6	July 1	6.1	0.8
July 29	6.8	2.7	July 8	5.2	2.3
Aug. 13	5.9	1.2	July 22	5.5	1.8
Aug. 19	5.9	2.4	July 28	6.5	3.4
Aug. 24	6.3	1.2	Aug. 12	10.7	2.3
Sept. 3	5.7	2.7	Aug. 26	5.5	2.3
Sept. 10	5.3	3.0	Sept. 23	5.5	2.7
Sept. 16	5.6	4.5	Oct. 7	5.3	2.1
Sept. 24	5.6	4.2			
Mean	5.97	2.50	Mean	5.85	2.14
Std. dev.	0.40	1.15	Std. dev.	1.76	0.66

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Elbow LAKE	Frontenac COUNTY	Hinchinbrooke TOWNSHIP(S)
Watershed Area: 19.2	km ²	Shoreline : 13.32 km
Surface Area : 126	ha	Cottages : 48
Maximum Depth: 9.8	m	Resorts : 1 (5)
Volume : 6.56	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1982

Total Phosphorus (µg/l)	:	17	Alkalinity (mg/l)	25
Total Nitrogen (µg/l)	:	542	Colour	52

	<u>1984</u>	<u>1983</u>	<u>1982</u> ²	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.1	3.3	2.4								
Min.											
Secchi (m)	2.9	3.0	2.1								
Mean Chloro.											
(µg/l)	3.8	2.2	2.6								
Max. Chloro.											
(µg/l)	7.5	3.0	5.0								

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	3.2	1.3			
June 4	3.0	2.5			
June 26	3.2	7.5			
July 18	2.9	2.4			
Aug. 19	3.1	2.5			
Aug. 26	2.9	4.2			
Sept. 3	2.9	4.1			
Sept. 16	3.0	5.7			
Dec. 3	<u>4.0</u>	<u> </u>			
Mean	3.14	3.78			
Std. dev.	0.37	2.04			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Faraday (Trout) LAKE	Hastings COUNTY	Faraday TOWNSHIP(S)
Watershed Area: 19.20	km ²	Shoreline : 7.57 km
Surface Area : 113	ha	Cottages : 89
Maximum Depth: 24.4	m	Resorts : 1 (15)
Volume : 10.19	x 10 ⁶ m ³	% Crown Land : 35

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	8	Alkalinity (mg/l)	15
Total Nitrogen (µg/l)	:	240	Colour	9

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	6.6	6.4	5.5				6.1				
Min.											
Secchi (m)	6.6	6.1	4.1				4.8				
Mean Chloro.											
(µg/l)	1.1	1.3	1.2				1.4				
Max. Chloro.											
(µg/l)	1.1	1.3	1.6				1.8				

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Aug. 15	6.6	1.1			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Farren (Farrell) LAKE	Lanark COUNTY	South Sherbrooke TOWNSHIP(S)
Watershed Area: 12.25	km ²	Shoreline : 9.5 km
Surface Area : 173	ha	Cottages : 101 (1974)
Maximum Depth: 21.3	m	Resorts : 1 (6)
Volume : 14.32	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	8	Alkalinity (mg/l)	87
Total Nitrogen (µg/l)	:	360	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	4.8	4.9	5.0	5.7	5.2					4.7	
Min.											
Secchi (m)	2.3	4.1	4.3	3.6	3.5					2.7	
Mean Chloro. (µg/l)	1.9	1.2	1.3	1.6	2.2					2.0	
Max. Chloro. (µg/l)	4.3	1.6	2.2	2.6	3.3					4.3	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	2.3	4.3			
June 3	4.0	1.2			
June 17	5.8	1.8			
July 2	5.6	1.1			
July 15	5.8	-			
July 29	5.3	2.0			
Aug. 6	4.9	2.0			
Aug. 29	4.7	1.3			
Sept. 23	4.9	1.7			
Mean	4.81	1.93			
Std. dev.	1.11	1.02			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Gananoque	Leeds	Rear & Front of Leeds Lansdowne TOWNSHIP(S)
LAKE	COUNTY	
Watershed Area: 424.40	km ²	Shoreline : 33.17 km
Surface Area : 617	ha	Cottages : 111
Maximum Depth: 23.77	m	Resorts : 2 (19)
Volume : 42.82	x 10 ⁶ m ³	% Crown Land : 3

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	25	Alkalinity (mg/l)	118
Total Nitrogen (µg/l)	:	618	Colour	22

	<u>1984</u> ²	<u>1983</u>	<u>1982</u> ²	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.1	3.1	2.6	3.1	1.8	3.2	3.0	2.2			
Min.											
Secchi (m)	1.5	2.4	1.8	2.0	1.2	2.5	2.3	1.5			
Mean Chloro. (µg/l)	4.9	3.1	3.5	4.6	5.3	3.1	4.7	3.1			
Max. Chloro. (µg/l)	8.8	7.8	10.3	7.7	12.1	4.8	8.3	5.8			

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Sept. 3	2.7	5.3			
Sept. 16	2.6	5.3			
Sept. 29	<u>2.6</u>	<u>1.8</u>			
Mean	2.6	4.1			
Std. dev.	0.06	2.0			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Glanmire LAKE		Hastings COUNTY		Tudor TOWNSHIP(S)	
Watershed Area:	7.59	km ²	Shoreline	: 9.8	km
Surface Area :	91	ha	Cottages	: 33	
Maximum Depth:	6.7	m	Resorts	: 0	
Volume :	2.93	x 10 ⁶ m ³	% Crown Land :		

WATER CHEMISTRY 1976

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	35
Total Nitrogen (µg/l)	:	543	Colour	13

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u> ¹	<u>1974</u>
Mean											
Secchi (m)	4.0	3.7	3.4	2.8	3.0	3.6	3.7	3.4	4.0	3.6	
Min.											
Secchi (m)	4.0	1.2	2.7	1.5	2.1	1.5	3.0	2.1	1.8	1.8	
Mean Chloro.											
(µg/l)	2.6	3.4	1.3	6.1	8.3	3.4	3.0	1.9	3.5	6.3	
Max. Chloro.											
(µg/l)	2.6	9.3	1.8	12.2	17.5	8.8	6.4	4.2	10.6	15.0	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Aug. 19	4.0	2.6			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Golden LAKE		Renfrew COUNTY		North Algona TOWNSHIP(S)
Watershed Area:	1488	km ²	Shoreline	: 46.7 km
Surface Area :	3375	ha	Cottages	: 397 + 43 houses
Maximum Depth:	24	m	Resorts	: 18 (632)
Volume :	300	x 10 ⁶ m ³	% Crown Land:	0

WATER CHEMISTRY 1978

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	22.3
Total Nitrogen (µg/l)	:	360	Colour	12

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u> ¹	<u>1975</u>	<u>1972</u> ²
Mean											
Secchi (m)	3.8	4.5	3.7		3.7	4.0	4.2		3.7		3.2
Min.											
Secchi (m)	3.4	4.0	2.9		2.7	3.4	3.2		3.5		
Mean Chloro. (µg/l)	1.8	1.7	2.6		2.6	1.7	2.0		2.2		1.5
Max. Chloro. (µg/l)	1.8	2.6	3.2		4.1	1.1	2.6		2.5		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
April 29	3.4	1.8			
July 29	4.3	1.8			
Aug. 9	<u>3.7</u>	<u>1.7</u>			
Mean	3.8	1.77			
Std. dev.	0.46	0.06			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Gould LAKE	Frontenac COUNTY	Loughborough TOWNSHIP(S)
Watershed Area: 9.59	km ²	Shoreline : 2.09 km
Surface Area : 199	ha	Cottages : 24+2 houses
Maximum Depth: 61.57	m	Resorts : 1 (20)
Volume : 39.78	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	9	Alkalinity (mg/l)	74
Total Nitrogen (µg/l)	:	243	Colour	6

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u>	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.9	5.9		5.9			5.9				
Min.											
Secchi (m)	5.5	5.2		4.1			4.0				
Mean Chloro. (µg/l)	2.1	1.3		1.9			1.1				
Max. Chloro. (µg/l)	2.5	1.4		2.8			1.5				

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 30	5.8	2.2			
July 29	6.5	1.5			
Aug. 15	<u>5.5</u>	<u>2.5</u>			
Mean	5.9	2.07			
Std. dev.	0.51	0.51			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Grippen		Leeds		Rear of Leeds & Lansdowne TOWNSHIP(S)
LAKE		COUNTY		
Watershed Area:	20.30	km ²	Shoreline	: 7.72 km
Surface Area :	191	ha	Cottages	: 76
Maximum Depth:	16.00	m	Resorts	: 1 (24)
Volume :	22.03	x 10 ⁶ m ³	% Crown Land :	0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	15	Alkalinity (mg/l)	126
Total Nitrogen (µg/l)	:	523	Colour	10

	<u>1984</u> ²	<u>1983</u> ²	<u>1982</u> ²	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.4	2.8	3.3	3.2	3.8	2.9	3.2	2.6	3.9	2.9	
Min.											
Secchi (m)	1.2	1.4	1.1	1.0	2.9	2.0	2.1	1.4	2.3	1.8	
Mean Chloro.											
(µg/l)	3.0	3.7	3.3	4.6	4.0	2.5	3.1	2.1	3.1	2.6	
Max. Chloro.											
(µg/l)	4.4	9.9	7.4	11.0	7.0	3.7	4.7	4.6	5.6	5.6	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 2	1.7	3.4			
July 8	2.0	1.4			
July 15	1.2	-			
July 31	3.5	2.9			
Aug. 12	3.7	2.5			
Aug. 19	4.1	3.0			
Sept. 3	<u>2.4</u>	<u>2.4</u>			
Mean	2.66	2.60			
Std. dev.	1.11	0.69			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Gunter LAKE		Hastings COUNTY		Cashel TOWNSHIP(S)	
Watershed Area:	20.6	km ²	Shoreline	:	5.5 km
Surface Area :	69	ha	Cottages	:	46 + 9 houses
Maximum Depth:	18.3	m	Resorts	:	2
Volume :	12.63	x 10 ⁶ m ³	% Crown Land :		18

WATER CHEMISTRY 1977

Total Phosphorus (µg/l)	:	14	Alkalinity (mg/l)	100
Total Nitrogen (µg/l)	:	364	Colour	10

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.6	3.5	3.9	4.3	3.6			5.2			
Min.											
Secchi (m)	2.4	2.7	3.0	2.9	2.7			3.6			
Mean Chloro. (µg/l)	1.8	1.0	1.7	2.5	2.0			2.0			
Max. Chloro. (µg/l)	2.3	1.4	4.2	4.6	2.7			4.2			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Station 22A			Station 22B		
June 18	3.7	1.8	June 18	2.4	0.8
July 3	3.7	-	July 3	4.0	-
July 17	3.0	-	July 17	3.7	-
Aug. 5	3.7	1.9	Aug. 5	4.0	2.1
Aug. 21	4.0	2.3	Aug. 21	3.7	2.0
Sept. 4	<u>3.7</u>	<u>1.5</u>	Sept. 4	<u>3.8</u>	<u>1.8</u>
Mean	3.63	1.88	Mean	3.6	1.68
Std. dev.	0.33	0.33	Std. dev.	0.60	0.60

SELF-HELP PROGRAM SOUTHEASTERN REGION 1984

Hambly LAKE		Frontenac COUNTY		Portland TOWNSHIP(S)
Watershed Area:	8.4	km ²	Shoreline	: 11.3 km
Surface Area :	89	ha	Cottages	: 44+7 houses (1983)
Maximum Depth:	14.6	m	Resorts	: 0
Volume :	3.55	x 10 ⁶ m ³	% Crown Land :	0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	16	Alkalinity (mg/l)	157
Total Nitrogen (µg/l)	:	577	Colour	27

	<u>1984</u> ¹	<u>1983</u> ²	<u>1982</u>	<u>1981</u> ¹	<u>1980</u>	<u>1979</u> ¹	<u>1978</u> ¹	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.5	3.9		4.1	4.0	3.2	3.4	3.1			
Min.											
Secchi (m)	5.5	3.0		4.0	3.2	3.0	2.4	2.6			
Mean Chloro. (µg/l)	2.3	1.8		2.6	6.9	4.5	2.7	3.7			
Max. Chloro. (µg/l)	2.3	2.8		3.5	12.1	8.1	4.3	12.6			

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 6	5.5	2.3			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Hay Bay LAKE	Lennox & Addington COUNTY	Fredericksburgh TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : km
Surface Area :	ha	Cottages :
Maximum Depth:	m	Resorts : 6(211)
Volume :	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)										
Total Nitrogen (µg/l)	:	Colour										
		<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ¹	<u>1975</u>	<u>1974</u>
Mean												
Secchi (m)		1.2	2.0	1.6	1.4	1.0	1.2	1.5	1.1	0.8		
Min.												
Secchi (m)		0.9	0.9	1.1	0.9	0.5	0.7	0.8	0.9	0.8		
Mean Chloro.												
(µg/l)		18.9	11.2	11.3	14.2	19.9	16.6	12.1	16.6	16.0		
Max. Chloro.												
(µg/l)		45.6	28.2	25.0	25.0	30	34.5	33.9	35.8	23.0		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Ram Island			South Shore		
June 26	1.7	3.1	June 26	1.7	7.9
July 17	0.9	-	July 17	0.9	-
Sept. 6	0.9	45.6			
Mean	1.17	24.35	Mean	1.3	
Std. dev.	0.46	30.05	Std. dev.	0.57	

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Horseshoe LAKE	Frontenac COUNTY	Kennebec TOWNSHIP(S)
Watershed Area: 396.3	km ²	Shoreline : km
Surface Area : 68	ha	Cottages : 74 (17 houses)
Maximum Depth: m		Resorts :
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	19	Alkalinity (mg/l)	45
Total Nitrogen (µg/l)	:	445	Colour	31

	<u>1984</u> ²	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.5				2.4						
Min.											
Secchi (m)	2.3				2.4						
Mean Chloro.											
(µg/l)	2.1				3.2						
Max. Chloro.											
(µg/l)	4.2				3.8						

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 24	3.0	2.3			
Aug. 2	4.3	1.4			
Aug. 9	3.7	2.2			
Aug. 19	2.3	3.7			
Aug. 23	3.7	2.7			
Aug. 24	4.0	2.7			
Sept. 9	2.7	2.6			
Sept. 27	2.9	3.4			
Oct. 4	3.4	-			
Oct. 9	3.4	2.2			
Oct. 16	<u>3.4</u>	<u>2.3</u>			
Mean	3.35	1.78			
Std. dev.	0.59	0.65			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Indian LAKE	Leeds COUNTY	South Crosby TOWNSHIP(S)
Watershed Area: 359	km ²	Shoreline : 16.58 km
Surface Area : 266	ha	Cottages : 106
Maximum Depth: 26	m	Resorts : 2(11)
Volume : 26.79	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	17	Alkalinity (mg/l)	84
Total Nitrogen (µg/l)	:	453	Colour	13

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1971</u> ²
Mean											
Secchi (m)	3.7	4.0	4.3		3.9			3.6		4.6	4.2
Min.											
Secchi (m)	2.9	2.9	3.3		3.0			3.0		3.7	
Mean Chloro.											
(µg/l)	2.5	1.5	2.2		3.0			2.0		3.6	2.0
Max. Chloro.											
(µg/l)	3.2	2.8	3.4		4.1			2.7		6.7	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 13	3.8	-			
June 21	3.8	3.2			
July 5	2.9	1.8			
July 10	2.9	2.4			
July 22	4.3	1.8			
July 26	3.8	2.2			
Aug. 2	4.9	2.4			
Aug. 16	3.4	3.1			
Aug. 30	3.8	2.1			
Sept. 5	3.2	2.4			
Sept. 15	<u>3.4</u>	<u>3.1</u>			
Mean	3.65	2.45			
Std. dev.	0.59	0.52			

Chlorophyll value of 11.0 µg/l on June 28 excluded as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Joe Perry		Lennox & Addington COUNTY		Effingham TOWNSHIP(S)
LAKE				
Watershed Area:	15.4	km ²	Shoreline :	9 km
Surface Area :	169	ha	Cottages :	0
Maximum Depth:	23	m	Resorts :	0
Volume :	12.35	x 10 ⁶ m ³	% Crown Land :	100

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	9	Alkalinity (mg/l)	10
Total Nitrogen (µg/l)	:	350	Colour	16

	<u>1984</u>	<u>1983</u> ¹	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.0	4.1	3.8	5.6	3.0	3.8	4.2	4.2	4.4		
Min.											
Secchi (m)	2.7	3.7	3.0	3.0	2.4	2.8	3.0	3.0	3.6		
Mean Chloro. (µg/l)	2.0	2.2	2.0	1.7	2.0	2.5	2.5	2.5	1.6		
Max. Chloro. (µg/l)	3.2	5.0	2.6	1.9	1.5	2.8	2.6	2.6	2.3		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 20	3.0	1.6			
June 27	2.7	1.1			
July 25	3.0	1.9			
Aug. 8	3.7	2.4			
Aug. 15	3.0	3.2			
Aug. 22	2.7	2.0			
Aug. 29	<u>3.0</u>	<u>2.0</u>			
Mean	3.01	2.03			
Std. dev.	0.33	0.66			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Killenbeck (Southwest End) LAKE	Leeds COUNTY	Rear of Leeds & Lansdowne TOWNSHIP(S)
Watershed Area: 10.9	km ²	Shoreline : 4.7 km
Surface Area : 44	ha	Cottages : 14
Maximum Depth: 27.7	m	Resorts :
Volume : 4.3	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)										
Total Nitrogen (µg/l)	:	Colour										
		<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ¹	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean												
Secchi (m)	2.6							3.1				
Min.												
Secchi (m)	1.7							3.1				
Mean Chloro.												
(µg/l)	4.0							4.3				
Max. Chloro.												
(µg/l)	6.0							4.3				

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

Date	Secchi (m)	Chloro. (µg/l)	Date	Secchi (m)	Chloro. (µg/l)
June 5	3.0	1.4			
June 12	3.2	2.8			
June 19	3.2	2.6			
June 27	3.2	1.0			
July 3	2.0	-			
July 10	1.7	-			
July 17	1.7	-			
July 24	2.3	6.0			
July 31	2.3	5.4			
Aug. 7	2.6	6.0			
Aug. 15	2.3	5.6			
Aug. 21	2.3	3.7			
Sept. 5	2.3	4.9			
Sept. 11	2.6	4.9			
Oct. 2	3.2	3.5			
Oct. 10	2.3	5.2			
Oct. 16	2.9	2.8			
Oct. 23	2.9	-			
Oct. 30	2.9	-			
Mean	2.57	3.99			
Std. dev.	0.49	1.68			

Chlorophyll determination of 12.4 µg/l on July 10 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Kingsford LAKE	Frontenac COUNTY	Bedford TOWNSHIP(S)
Watershed Area: 132	km ²	Shoreline : km
Surface Area : 102.8	ha	Cottages :
Maximum Depth: 27	m	Resorts :
Volume :	$\times 10^6$ m ³	% Crown Land :

WATER CHEMISTRY 19

Total Phosphorus ($\mu\text{g/l}$)	:	Alkalinity (mg/l)
Total Nitrogen ($\mu\text{g/l}$)	:	Colour

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m) 5.3											
Min.											
Secchi (m) 4.1											
Mean Chloro.											
($\mu\text{g/l}$) 2.4											
Max. Chloro.											
($\mu\text{g/l}$) 3.8											

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. ($\mu\text{g/l}$)</u>
May 21	4.1	3.1			
May 29	4.7	1.6			
June 6	5.8	1.0			
July 2	6.4	-			
July 8	5.8	3.8			
Aug. 16	<u>5.2</u>	<u>2.4</u>			
Mean	5.33	2.38			
Std. dev.	0.84	1.12			

Chlorophyll determination of 10.8 $\mu\text{g/l}$ on July 2 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Limerick LAKE	Hastings COUNTY	Limerick TOWNSHIP(S)
Watershed Area: 181.41 km ²	Shoreline : 27 km	
Surface Area : 744 ha	Cottages : 130 + 3 houses	
Maximum Depth: 29.0 m	Resorts : 1 (14)	
Volume : 62.87 x 10 ⁶ m ³	% Crown Land : 1	

WATER CHEMISTRY 1977

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	94
Total Nitrogen (µg/l)	:	272	Colour	8

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ¹	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.5	4.4	4.4	4.4	4.7	4.4	4.9	5.0	4.9	5.0	
Min.											
Secchi (m)	4.3	4.0	4.0	3.0	3.0	4.0	3.7	3.8	4.0	4.3	
Mean Chloro.											
(µg/l)	1.8	0.9	1.2	1.3	1.5	1.4	1.3	1.2	1.1	1.1	
Max. Chloro.											
(µg/l)	4.9	1.4	1.5	2.3	2.4	1.8	1.6	3.0	1.5	1.6	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 10	4.3	0.9			
July 17	4.3	1.1			
July 24	4.3	1.8			
Aug. 7	4.6	1.2			
Aug. 14	5.2	4.9			
Aug. 21	4.3	1.6			
Aug. 28	4.9	1.6			
Sept. 4	4.3	1.5			
Mean	4.53	1.83			
Std. dev.	0.35	1.28			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Little Cranberry
LAKE

Leeds
COUNTY

Rear of
Leeds & Lansdowne
TOWNSHIP(S)

Watershed Area:	741.8	km ²	Shoreline	:	km
Surface Area :		ha	Cottages	:	
Maximum Depth:	3.66	m	Resorts	:	
Volume :		x 10 ⁶ m ³	% Crown Land:	0	

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour

<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
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Mean

Secchi (m) 2.1 2.1

Min.

Secchi (m) 2.0 1.7

Mean Chloro.

(µg/l) 4.7 3.4

Max. Chloro.

(µg/l) 6.8 5.0

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 20	2.1	2.3			
July 5	2.2	4.9			
July 16	2.0	-			
July 26	2.3	6.3			
Aug. 7	2.0	4.7			
Aug. 22	2.0	6.8			
Aug. 31	<u>2.0</u>	<u>3.1</u>			
Mean	2.09	4.68			
Std. dev.	0.12	1.75			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Little Silver LAKE		Lanark COUNTY		S. Sherbrooke TOWNSHIP(S)
Watershed Area:	8.1	km ²	Shoreline	: 10.1 km
Surface Area :	83	ha	Cottages	: 31
Maximum Depth:	12.2	m	Resorts	: 0
Volume :	3.82	x 10 ⁶ m ³	% Crown Land:	0

WATER CHEMISTRY 1979

Total Phosphorus (µg/l)	:	14	Alkalinity (mg/l)	66
Total Nitrogen (µg/l)	:	395	Colour	13

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u> ²	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.9	4.3	4.4			3.6	5.3	4.0			
Min.											
Secchi (m)	2.6	3.5	3.5			2.3	3.8	3.0			
Mean Chloro. (µg/l)	2.7	1.4	2.1			4.6	2.6	4.4			
Max. Chloro. (µg/l)	7.1	3.1	3.5			9.2	6.0	8.8			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Basin B			Turtle Rock Bay		
June 10	4.3	-	May 27	2.7	-
June 23	4.4	1.8	June 3	3.1	-
July 2	4.1	3.3	June 10	3.7	2.3
July 15	4.0	1.2	June 16	3.7	2.5
July 22	4.6	2.0	June 23	4.6	1.5
Aug. 6	4.3	1.5	July 2	4.4	-
Aug. 11	4.1	1.7	July 14	4.4	1.4
Aug. 19	3.7	3.4	July 22	4.4	2.0
Aug. 28	2.9	3.6	Aug. 6	4.6	1.5
Oct. 13	<u>2.7</u>	<u>7.1</u>	Aug. 11	4.6	1.9
			Aug. 19	3.8	3.3
Mean	3.91	2.84	Aug. 26	3.5	3.3
Std. dev.	0.63	1.83	Oct. 13	<u>2.6</u>	<u>6.5</u>
			Mean	3.85	2.62
			Std. dev.	0.72	1.53

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Lost Bay (Gananoque River) LAKE	Leeds COUNTY	Rear of Leeds & Lansdowne TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : km
Surface Area :	ha	Cottages :
Maximum Depth:	m	Resorts :
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.0										
Min.											
Secchi (m)	2.9										
Mean Chloro.											
(µg/l)	3.7										
Max. Chloro.											
(µg/l)	5.1										

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Aug. 18	3.0	5.1			
Aug. 25	2.9	5.0			
Sept. 1	3.0	1.6			
Sept. 8	<u>3.2</u>	<u>2.9</u>			
Mean	3.03	3.65			
Std. dev.	0.13	1.70			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Loughborough (East Basin) LAKE	Frontenac COUNTY	Storrington, Loughborough TOWNSHIP(S)
Watershed Area: 120	km ²	Shoreline : 72.4 km
Surface Area : 1065	ha	Cottages : 240+10 houses (1972)
Maximum Depth: 6.1	m	Resorts : 2 (74)
Volume : 22.08	x 10 ⁶ m ³	% Crown Land: 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	26	Alkalinity (mg/l)	90
Total Nitrogen (µg/l)	:	567	Colour	15

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>	<u>1973</u>
Mean												
Secchi (m)	2.9	3.6	2.8	2.9	3.2	3.3	3.0	2.8	3.4	2.4	2.7	3.3
Min.												
Secchi (m)	2.2	2.8	2.1	2.1	2.3	2.9	2.4	2.1	2.3	1.6	2.0	2.7
Mean Chloro.												
(µg/l)	3.5	2.2	3.1	4.9	5.1	3.6	3.6	3.7	2.1	4.6	2.7	3.3
Max. Chloro.												
(µg/l)	6.4	4.7	5.9	6.7	8.1	5.7	6.7	6.2	3.6	9.5	6.0	4.5

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 5	2.7	2.5			
June 13	3.7	-			
June 20	3.4	4.2			
July 4	2.9	0.1			
July 19	2.4	-			
July 25	2.7	3.3			
Aug. 2	2.4	4.7			
Aug. 15	2.6	3.6			
Aug. 22	2.2	6.4			
Aug. 29	2.6	5.5			
Sept. 6	2.6	4.4			
Sept. 17	2.7	3.9			
Sept. 24	3.1	3.7			
Oct. 1	2.9	2.3			
Oct. 10	3.5	2.4			
Oct. 17	3.7	2.2			
Oct. 29	3.4	-			
Nov. 5	<u>3.5</u>	<u>-</u>			
Mean	2.94	3.51			
Std. dev.	0.48	1.58			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Loughborough (West Basin) LAKE	Frontenac COUNTY	Storrington, Loughborough TOWNSHIP(S)
Watershed Area: 58	km ²	Shoreline : 28.7 km
Surface Area : 738	ha	Cottages : 138 + 13 houses (1972)
Maximum Depth: 38.4	m	Resorts : 3 (187)
Volume : 107.13	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1981

Total Phosphorus (µg/l)	:	16	Alkalinity (mg/l)	114
Total Nitrogen (µg/l)	:	365	Colour	9

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u> ¹	<u>1973</u>
Mean												
Secchi (m)	5.2	5.5	6.0	6.4	4.8	4.0	3.9	3.4	4.5	4.2	3.8	4.0
Min.												
Secchi (m)	4.6	4.6	5.5	4.1	3.4	2.8	3.0	2.3	3.8	2.6	2.8	3.2
Mean Chloro.												
(µg/l)	2.8	1.6	1.4	2.5	2.5	2.0	1.8	2.2	2.5	2.0	2.0	1.2 ¹
Max. Chloro.												
(µg/l)	4.7	3.2	2.9	3.8	5.0	2.7	2.6	3.8	3.1	4.2	2.4	1.3

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 1	5.2	1.8			
June 17	5.2	-			
July 16	5.3	-			
July 28	5.5	2.9			
Aug. 7	4.6	4.7			
Sept. 30	<u>5.5</u>	<u>1.7</u>			
Mean	5.22	2.78			
Std. dev.	0.33	1.39			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Lower Beverley LAKE		Leeds COUNTY		South Crosby TOWNSHIP(S)
Watershed Area:	281.8	km ²	Shoreline	: 44 km
Surface Area :	766	ha	Cottages	: 247 + 13 homes
Maximum Depth:	25.9	m	Resorts	: 4 (272)
Volume :	70.2	x 10 ⁶ m ³	% Crown Land :	

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	29	Alkalinity (mg/l)	126.5
Total Nitrogen (µg/l)	:	620	Colour	24

	<u>1984</u> ²	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.2			2.5				2.4			
Min.											
Secchi (m)	1.0			1.9				1.4			
Mean Chloro.											
(µg/l)	8.6			6.4				5.2			
Max. Chloro.											
(µg/l)	17.1			7.8				14.0			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 4	2.3	3.0			
June 19	2.9	3.6			
July 3	2.1	1.1			
July 25	1.5	11.9			
Aug. 6	1.0	17.1			
Aug. 19	1.4	13.4			
Aug. 28	<u>1.2</u>	<u>10.3</u>			
Mean	1.77	8.63			
Std. dev.	0.68	6.08			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Lower Rock LAKE	Frontenac COUNTY	Storrington TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : 16.4
Surface Area : 219	ha	Cottages : 12 (1974)
Maximum Depth: 17.4	m	Resorts :
Volume : 145	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	16	Alkalinity (mg/l)	70
Total Nitrogen (µg/l)	:	406	Colour	22

1984² 1983 1982 1981 1980 1979 1978 1977 1976 1975 1974

Mean

Secchi (m) 3.7

Min.

Secchi (m) 2.0

Mean Chloro.

(µg/l) 3.0

Max. Chloro.

(µg/l) 4.4

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 25	4.4	-			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Mazinaw LAKE	Frontenac, Lennox & Addington COUNTY	Abinger, Barrie TOWNSHIP(S)
Watershed Area: 137.85 km ²	Shoreline : 49.1 km	
Surface Area : 1590 ha	Cottages : 254 (1972)	
Maximum Depth: 144.8 m	Resorts : 3 (47), 5 (765)	
Volume : 655 x 10 ⁶ m ³	% Crown Land : 50	Prov. Park

WATER CHEMISTRY 1971

Total Phosphorus (µg/l)	:	9	Alkalinity (mg/l)	18
Total Nitrogen (µg/l)	:	270	Colour	

	<u>1984</u>	<u>1983</u> ¹	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1971</u> ²
Mean											
Secchi (m)	4.0	3.6	3.5	4.7	4.6	5.2	5.0	4.9	5.3	5.7	5.2
Min.											
Secchi (m)	2.1	2.7	2.4	3.0	3.0	3.4	4.2	3.0	4.2	5.2	3.6
Mean Chloro.											
(µg/l)	1.5	1.0	1.2	1.2	1.7	1.4	1.0	1.2	1.2	1.1	1.0
Max. Chloro.											
(µg/l)	2.8	1.3	1.6	1.6	2.5	3.1	1.7	2.6	1.6	1.7	1.9

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 20	3.0	0.8			
June 27	2.4	2.8			
July 10	4.7	0.3			
July 17	4.6	1.0			
July 24	5.8	0.8			
July 24	4.9	1.5			
July 25	2.1	1.4			
July 31	5.5	1.8			
Aug. 7	4.4	1.9			
Aug. 8	3.7	1.7			
Aug. 14	4.1	1.7			
Aug. 15	3.7	1.6			
Aug. 21	4.4	2.1			
Aug. 22	2.7	1.7			
Aug. 28	4.6	1.5			
Aug. 29	<u>3.9</u>	<u>1.6</u>			
Mean	3.98	1.51			
Std. dev.	1.09	0.58			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

McKay LAKE	Regional Municipality of Ottawa-Carleton COUNTY	Village of Rockcliffe Park TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : km
Surface Area :	ha	Cottages : 0
Maximum Depth:	m	Resorts : 0
Volume :	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour
	<u>1984</u> ¹	<u>1983</u> <u>1982</u> <u>1981</u> <u>1980</u> <u>1979</u> <u>1978</u> <u>1977</u> <u>1976</u> <u>1975</u> <u>1974</u>

Mean
Secchi (m) 3.1 2.0 2.4

Min.
Secchi (m) 2.7 1.1 1.1

Mean Chloro.
(µg/l) 12.8 5.6 1.6

Max. Chloro.
(µg/l) 20.3 18.8 3.6

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 27	3.1	5.3			
July 14	2.7	-			
Aug. 6	<u>3.4</u>	<u>20.3</u>			
Mean	3.07	12.8			
Std. dev.	0.35	10.6			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

McKay Lake - The Pond	Regional Municipality of Ottawa-Carleton	Village of Rockcliffe Park
LAKE	COUNTY	TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : km
Surface Area :	ha	Cottages : 0
Maximum Depth:	m	Resorts : 0
Volume :	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)								
Total Nitrogen (µg/l)	:	Colour								
1984 ¹	1983	1982	1981	1980	1979	1978	1977	1976	1975	1974

Mean

Secchi (m) 2.5 2.8 3.2

Min.

Secchi (m) 2.5 1.4 1.8

Mean Chloro.

(µg/l) 1.7 1.6 1.8

Max. Chloro.

(µg/l) 1.7 2.4 3.7

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 27	2.5	-			
Aug. 6	<u>2.5</u>	<u>1.7</u>			
Mean	2.5	1.7			
Std. dev.	0	0			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Meach LAKE		Hastings COUNTY		McClure TOWNSHIP(S)	
Watershed Area:	6.7	km ²	Shoreline	:	4.2 km
Surface Area :	42	ha	Cottages	:	
Maximum Depth:	12	m	Resorts	:	
Volume :	2.0	x 10 ⁶ m ³	% Crown Land :		

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour

1984 1983¹ 1982 1981 1980 1979 1978 1977 1976 1975 1974

Mean

Secchi (m) 3.4 4.2

Min.

Secchi (m) 3.0 4.0

Mean Chloro.

(µg/l) 2.6 4.5

Max. Chloro.

(µg/l) 3.6 11.6

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 27	3.0	2.9			
July 26	3.3	2.5			
Aug. 18	4.2	2.8			
Sept. 11	3.5	3.6			
Sept. 30	3.1	1.4			
Oct. 23	<u>3.3</u>	—			
Mean	3.4	2.64			
Std. dev.	0.43	0.80			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Mink LAKE		Renfrew COUNTY		Wilberforce TOWNSHIP(S)	
Watershed Area:	40.2	km ²	Shoreline	:	km
Surface Area :	556	ha	Cottages	:	119
Maximum Depth:	13.7	m	Resorts	:	2 (102)
Volume :	72.3	x 10 ⁶ m ³	% Crown Land :	:	0

WATER CHEMISTRY 1978

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	99
Total Nitrogen (µg/l)	:	480	Colour	4

	<u>1984</u>	<u>1983</u>	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1973</u> ¹
Mean											
Secchi (m)	3.3		2.7	3.0	4.1	4.2	4.1	3.5	3.6	3.8	3.4
Min.											
Secchi (m)	3.0		2.4	1.7	3.8	3.7	3.8	2.9	2.6	3.0	2.6
Mean Chloro.											
(µg/l)	2.4		1.8	2.5	3.5	1.4	2.0	1.5	1.8	1.8	1.2
Max. Chloro.											
(µg/l)	3.1		2.9	4.7	8.5	1.8	6.0	2.5	2.8	5.9	1.4

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 3	3.5	-			
July 9	3.0	3.1			
Aug. 8	3.4	2.6			
Aug. 15	3.0	3.1			
Aug. 27	3.5	2.4			
Sept. 10	<u>3.3</u>	<u>2.0</u>			
Mean	3.28	2.44			
Std. dev.	1.81	0.44			

Chlorophyll value of 12.5 µg/l on July 3 was rejected as an anomalous data value.

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Mississippi		Lanark		Drummond, Beckwith, Ramsay TOWNSHIP(S)
LAKE		COUNTY		
Watershed Area:	2900	km ²	Shoreline	: 58 km
Surface Area :	2346	ha	Cottages	: 1278 + 11 houses
Maximum Depth:	9.2	m	Resorts	: 16 (1121)
Volume :	64.33	x 10 ⁶ m ³	% Crown Land :	0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	26	Alkalinity (mg/l)	84
Total Nitrogen (µg/l)	:	460	Colour	25

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1975</u> ²	<u>1974</u>	<u>1973</u>
Mean											
Secchi (m)	3.1	2.8	2.6	2.5	2.7	3.9	4.1	3.4	2.5	3.6	4.3
Min.											
Secchi (m)	2.4	1.8	1.7	1.7	1.8	1.5	3.5	2.9	2.0	2.6	
Mean Chloro.											
(µg/l)	3.9	1.6	3.6	4.9	3.0	2.1	2.0	1.8	9.1	2.0	2.2
Max. Chloro.											
(µg/l)	7.3	2.4	8.8	14.0	4.3	9.2	3.1	2.8	16.0	4.7	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 26	3.7	1.9			
July 2	3.7	0.9			
July 24	2.4	3.0			
July 30	3.4	2.8			
Aug. 6	3.0	5.5			
Aug. 15	3.0	6.6			
Aug. 27	2.4	7.3			
Sept. 5	<u>3.0</u>	<u>3.5</u>			
Mean	3.08	3.94			
Std. dev.	0.51	2.29			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Moir (East Basin) LAKE	Hastings COUNTY	Huntington TOWNSHIP(S)
Watershed Area: 596	km ²	Shoreline : 14.7 km
Surface Area : 611	ha	Cottages : 180 + 12 houses
Maximum Depth: 11	m	Resorts : 3 (390)
Volume :	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	39	Alkalinity (mg/l)	105
Total Nitrogen (µg/l)	:	595	Colour	

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u> ¹	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.3	1.8	2.0	3.1		2.0	2.0	2.0			2.1
Min.											
Secchi (m)	1.4	1.1	1.2	2.2		0.9	1.4	1.4			0.8
Mean Chloro. (µg/l)	10.6	10.1	11.3	5.1		10.2	8.0	7.2			9.2
Max. Chloro. (µg/l)	19.8	27.0	28.8	14.0		29.5	18.2	20.7			51.0

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 3	2.9	4.0			
June 10	3.5	1.1			
June 17	3.2	3.6			
June 24	2.7	12.5			
July 5	2.8	1.7			
July 9	2.6	2.5			
July 15	2.7	-			
July 23	3.4	9.8			
Aug. 5	1.5	17.6			
Aug. 14	1.4	17.8			
Aug. 25	1.4	13.3			
Sept. 8	1.7	14.0			
Sept. 16	1.4	19.6			
Sept. 23	1.4	19.8			
Sept. 30	2.1	-			
Oct. 6	<u>2.1</u>	<u>10.7</u>			
Mean	2.30	10.57			
Std. dev.	0.77	6.89			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Moir (West Basin) LAKE	Hastings COUNTY	Huntington TOWNSHIP(S)
Watershed Area: 546	km ²	Shoreline : 9.3 km
Surface Area : 216	ha	Cottages : 79 + 22 houses
Maximum Depth: 7.3	m	Resorts : 2 (30)
Volume :	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	55	Alkalinity (mg/l)	127
Total Nitrogen (µg/l)	:	627	Colour	

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.0	1.8				1.9	2.0				1.7
Min.											
Secchi (m)	1.5	0.8				1.4	1.4				1.0
Mean Chloro. (µg/l)	11.0	4.6				6.5	8.1				9.2
Max. Chloro. (µg/l)	18.9	12.0				15.6	18.2				24.5

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 18	2.1	-			
June 25	1.8	6.3			
July 5	2.6	2.6			
July 9	2.1	2.0			
July 15	2.4	-			
July 23	2.7	10.9			
July 29	1.5	15.5			
Aug. 7	2.1	18.9			
Aug. 13	2.1	17.5			
Aug. 20	1.5	9.0			
Sept. 16	<u>1.5</u>	<u>16.3</u>			
Mean	2.04	11.0			
Std. dev.	0.43	6.43			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Mosque LAKE	Frontenac COUNTY	Miller, Clarendon TOWNSHIP(S)
Watershed Area: 6.21	km ²	Shoreline : 13.2 km
Surface Area : 138	ha	Cottages : 43
Maximum Depth: 34.1	m	Resorts : 1 (3)
Volume : 9.70	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	4	Alkalinity (mg/l)	37
Total Nitrogen (µg/l)	:	305	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.2	5.4	5.0	5.6	6.0	5.6	5.5	5.2	6.3		
Min.											
Secchi (m)	4.0	4.3	4.3	3.7	4.9	3.4	4.6	4.6	3.8		
Mean Chloro. (µg/l)	1.8	0.9	1.4	1.4	1.6	1.4	1.7	1.7	1.8		
Max. Chloro. (µg/l)	4.3	1.4	2.6	2.5	2.1	2.0	3.8	3.8	5.9		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
North Basin			South Basin		
June 30	5.8	4.3	June 3	5.5	0.7
July 14	5.8	-	June 30	6.1	1.2
July 29	6.1	1.7	July 14	4.9	-
Aug. 14	5.5	1.8	July 29	6.2	2.1
Sept. 1	4.9	1.8	Aug. 14	5.3	2.1
Sept. 22	4.9	1.6	Sept. 1	4.3	1.7
Oct. 6	<u>4.3</u>	<u>1.7</u>	Sept. 22	4.9	1.3
			Oct. 6	<u>4.0</u>	<u>1.7</u>
Mean	5.33	2.15	Mean	5.15	1.54
Std. dev.	0.64	1.06	Std. dev.	0.79	0.51

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Mosque LAKE	Frontenac COUNTY	Miller, Clarendon TOWNSHIP(S)
Watershed Area: 6.21	km ²	Shoreline : 13.2 km
Surface Area : 138	ha	Cottages : 43
Maximum Depth: 34.1	m	Resorts : 1(3)
Volume : 9.7	x 10 ⁶ m ³	% Crown Land : 65

WATER CHEMISTRY 1976

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	38
Total Nitrogen (µg/l)	:	350	Colour	8

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.6	4.2	4.0	4.5	5.1	4.6	4.5	3.9	4.8		
Min.											
Secchi (m)	4.0	3.4	3.0	3.9	4.0	3.7	3.7	3.4	2.9		
Mean Chloro.											
(µg/l)	2.0	1.4	1.3	1.7	2.6	3.2	3.7	2.9	4.6		
Max. Chloro.											
(µg/l)	3.2	2.6	2.0	3.1	3.7	4.5	5.9	5.4	11.0		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
West Basin					
June 3	4.6	1.5			
June 30	4.6	0.9			
July 14	6.1	-			
July 29	4.6	2.1			
Aug. 14	4.0	3.2			
Sept. 1	4.3	1.9			
Sept. 22	4.6	1.9			
Oct. 6	<u>4.0</u>	<u>2.4</u>			
Mean	4.6	1.99			
Std. dev.	0.66	0.72			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Mosquito LAKE	Leeds COUNTY	South Crosby TOWNSHIP(S)
Watershed Area:	km ²	Shoreline : 15.4 km
Surface Area : 507	ha	Cottages : 13 (1971)
Maximum Depth: 12.2	m	Resorts :
Volume :	x 10 ⁶ m ³	% Crown Land :

WATER CHEMISTRY 19

Total Phosphorus (µg/l)	:	Alkalinity (mg/l)
Total Nitrogen (µg/l)	:	Colour

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m) 2.0											
Min.											
Secchi (m) 1.8											
Mean Chloro.											
(µg/l) 2.1											
Max. Chloro.											
(µg/l) 4.3											

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Apr. 29	2.4	0.8			
May 6	2.4	0.8			
May 13	2.4	4.1			
May 21	1.8	0.6			
May 27	1.8	2.9			
June 3	1.8	3.0			
June 10	1.8	2.3			
June 17	1.8	1.2			
July 1	2.4	4.3			
July 9	2.1	2.7			
July 22	1.8	1.1			
Aug. 2	<u>1.8</u>	<u>1.4</u>			
Mean	2.03	2.10			
Std. dev.	0.29	1.30			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Muskrat LAKE	Renfrew COUNTY	Westmeath, Ross TOWNSHIP(S)
Watershed Area: 481	km ²	Shoreline : 34.0 km
Surface Area : 1202	ha	Cottages : 132 + 21 houses
Maximum Depth: 64	m	Resorts : 5 (357)
Volume : 213.2	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1982

Total Phosphorus (µg/l)	:	33	Alkalinity (mg/l)	118
Total Nitrogen (µg/l)	:	597	Colour	20

	<u>1984</u>	<u>1983</u>	<u>1982</u> ²	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.1	2.3	2.3	1.6		2.4	2.8	1.7			
Min.											
Secchi (m)	1.7	1.4	1.1	0.9		1.8	1.6	1.2			
Mean Chloro. (µg/l)	8.0	9.3	9.9	19.6		7.1	8.0	10.3			
Max. Chloro. (µg/l)	20.2	18.3	37.8	71.0		2.5	60.8	28.0			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 10	1.7	2.3			
June 28	3.2	2.5			
July 5	3.7	1.2			
July 12	4.1	2.2			
July 14	4.3	2.2			
July 18	4.3	-			
July 25	3.4	6.2			
Aug. 1	2.9	13.4			
Aug. 8	2.9	16.0			
Aug. 15	2.3	20.2			
Aug. 22	2.0	15.2			
Aug. 29	3.5	4.8			
Sept. 9	2.1	10.6			
Sept. 16	2.6	10.0			
Oct. 7	<u>2.9</u>	<u>5.8</u>			
Mean	3.06	8.04			
Std. dev.	0.83	6.20			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Norway LAKE	Renfrew COUNTY	Bagot & Blythfield TOWNSHIP(S)
Watershed Area: 14.4	km ²	Shoreline : 12.9 km
Surface Area : 271	ha	Cottages : 124
Maximum Depth: 36.6	m	Resorts : 0
Volume : 25.38	x 10 ⁶ m ³	% Crown Land : 99

WATER CHEMISTRY 1978

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	103
Total Nitrogen (µg/l)	:	450	Colour	8

	<u>1984</u> ¹	<u>1983</u>	<u>1982</u> ¹	<u>1981</u> ¹	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.7	5.1	4.8	5.1		4.7	4.8				
Min.											
Secchi (m)	4.3	4.0	4.0	3.9		3.5	3.0				
Mean Chloro.											
(µg/l)	3.4	2.2	0.9	1.0		1.7	1.6				
Max. Chloro.											
(µg/l)	4.5	8.0	1.0	1.4		3.8	3.2				

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 3	4.3	-			
July 8	5.2	4.5			
July 29	<u>4.7</u>	<u>2.3</u>			
Mean	4.73	3.4			
Std. dev.	0.45	1.56			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Olmsted (Jeffreys) LAKE	Renfrew COUNTY	Ross TOWNSHIP(S)
Watershed Area: 26.8	km ²	Shoreline : 10.6 km
Surface Area : 180	ha	Cottages : 98
Maximum Depth: 29.3	m	Resorts : 2(305)
Volume : 11.6	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1978

Total Phosphorus (µg/l)	:	12	Alkalinity (mg/l)	88
Total Nitrogen (µg/l)	:	345	Colour	9

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ²	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.4	6.7	6.2	5.7	5.4	6.3	6.0	6.3			
Min.											
Secchi (m)	4.0	5.5	5.5	4.3	4.9	5.5	4.2	4.3			
Mean Chloro.											
(µg/l)	2.7	1.1	1.2	2.0	2.6	1.2	1.5	1.4			
Max. Chloro.											
(µg/l)	4.1	1.4	2.5	5.8	3.1	1.9	3.7	5.4			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 5	4.6	2.4			
June 20	5.5	-			
July 1	7.0	4.1			
July 20	6.7	1.4			
Aug. 11	5.8	2.5			
Sept. 10	5.2	2.0			
Sept. 24	4.6	3.1			
Oct. 7	<u>4.0</u>	<u>3.7</u>			
Mean	5.43	2.74			
Std. dev.	1.05	0.95			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Opinicon	Frontenac, Leeds	Bedford, South
LAKE	COUNTY	Crosby, Storrington TOWNSHIP(S)
Watershed Area: 580	km ²	Shoreline : 52 km
Surface Area : 785	ha	Cottages : 120 (1971)
Maximum Depth: 9.15	m	Resorts : 6 (104)
Volume : 38.31	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	28	Alkalinity (mg/l)	72
Total Nitrogen (µg/l)	:	537	Colour	7

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.1	3.2	3.1	3.2	3.2	3.3	3.0	2.8		3.0	
Min.											
Secchi (m)	2.1	2.4	2.6	2.7	2.4	2.7	2.7	2.3		2.3	
Mean Chloro.											
(µg/l)	3.9	2.2	2.7	3.1	3.9	3.7	3.6	2.6		3.1	
Max. Chloro.											
(µg/l)	12.3	3.2	5.0	6.3	7.3	12.4	7.1	3.8		5.2	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Vicinity of Sheep Island			Vicinity of Huckleberry and Government Islands		
June 10	3.7	1.8	May 27	3.4	2.7
June 15	4.3	-	June 3	3.3	1.3
June 25	3.0	3.5	June 10	3.7	1.5
July 22	3.4	2.1	June 17	3.5	1.8
July 29	2.6	2.7	June 26	3.7	4.5
Aug. 6	3.0	3.8	July 2	4.1	12.3
Aug. 13	2.7	3.9	July 8	3.7	2.4
Aug. 20	<u>2.7</u>	<u>5.6</u>	July 16	3.2	-
Mean	3.18	3.34	July 22	3.2	2.3
Std. dev.	0.59	1.29	July 29	2.4	4.6
			Aug. 7	3.0	3.3
			Aug. 15	2.4	5.0
			Aug. 19	2.3	5.0
			Aug. 25	2.1	6.5
			Sept. 3	2.1	3.6
			Sept. 15	2.3	6.8
			Oct. 6	<u>3.4</u>	<u>3.1</u>
			Mean	3.05	4.17
			Std. dev.	0.65	2.73

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Otter	Leeds	Bastard, South Elmsley, South Burgess, Kitley TOWNSHIP(S)
LAKE	COUNTY	
Watershed Area:	46.55 km ²	Shoreline : 255 km
Surface Area :	602 ha	Cottages : 290 + 5 houses
Maximum Depth:	36.6 m	Resorts : 6(214)
Volume :	60.46 x 10 ⁶ m ³	% Crown Land : 1

WATER CHEMISTRY 1982

Total Phosphorus (µg/l)	:	9	Alkalinity (mg/l)	134
Total Nitrogen (µg/l)	:	394	Colour	14

	<u>1984</u>	<u>1983</u>	<u>1982</u> ²	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.0	3.2	3.1	3.1	2.7	3.1	3.3	3.0	3.2	3.4	
Min.											
Secchi (m)	2.3	2.4	2.3	2.0	2.4	2.4	2.7	1.8	2.4	2.4	
Mean Chloro.											
(µg/l)	2.1	1.4	1.5	2.1	2.3	2.3	2.0	2.1	2.4	1.6	
Max. Chloro.											
(µg/l)	3.2	3.4	4.6	3.0	3.4	5.2	3.1	3.5	4.2	2.3	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 27	3.0	2.2			
June 10	2.7	1.4			
June 23	4.1	-			
June 30	4.4	-			
July 8	3.2	1.9			
July 14	3.4	1.9			
July 15	2.5	-			
July 21	3.4	3.2			
July 28	2.7	2.3			
Aug. 5	2.6	1.8			
Aug. 18	2.3	2.1			
Aug. 26	2.4	2.1			
Sept. 3	2.6	2.0			
Sept. 16	<u>2.7</u>	<u>2.6</u>			
Mean	3.0	2.14			
Std. dev.	0.63	0.47			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Otty LAKE	Lanark COUNTY	North Burgess, North Elmsley TOWNSHIP(S)
Watershed Area: 47.9	km ²	Shoreline : 35.4 km
Surface Area : 625	ha	Cottages : 336 + 41 houses
Maximum Depth: 27.4	m	Resorts : 3 (27)
Volume : 56.41	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	16	Alkalinity (mg/l)	95
Total Nitrogen (µg/l)	:	485	Colour	10

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>	<u>1973</u>
Mean												
Secchi (m)	4.1	4.5	4.7	3.9	4.5	4.4	4.2	4.0	4.5	4.4	3.8	4.1
Min.												
Secchi (m)	3.4	3.7	3.9	3.0	3.8	3.3	3.5	3.1	3.2	3.4	2.8	3.0
Mean Chloro. (µg/l)	2.8	1.3	2.2	2.2	2.7	2.1	2.1	1.7	1.8	2.1	1.1	1.9
Max. Chloro. (µg/l)	7.7	3.6	3.7	3.2	3.8	2.8	2.7	2.6	4.3	3.3	2.2	3.8

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Station A			Station B		
June 19	3.4	1.6	June 19	3.7	2.0
July 4	4.7	1.4	July 4	4.6	7.7
Aug. 27	<u>4.3</u>	<u>1.9</u>	Aug. 27	<u>4.0</u>	<u>2.0</u>
Mean	4.13	1.63	Mean	4.1	3.9
Std. dev.	0.67	0.25	Std. dev.	0.46	3.29

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Papineau LAKE	Hastings COUNTY	Wicklow, Bangor TOWNSHIP(S)
Watershed Area: 48	km ²	Shoreline : 21.9 km
Surface Area : 783	ha	Cottages : 266
Maximum Depth: 64	m	Resorts : 4(39)
Volume : 143	x 10 ⁶ m ³	% Crown Land : 26

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	8	Alkalinity (mg/l)	10
Total Nitrogen (µg/l)	:	250	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	7.7	6.9						8.1			
Min.											
Secchi (m)	6.4	6.1						6.4			
Mean Chloro. (µg/l)	1.7	0.9						1.4			
Max. Chloro. (µg/l)	3.7	1.5						2.7			

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 3	6.4	3.7			
July 8	6.6	2.9			
July 23	6.7	1.5			
July 29	7.6	1.4			
Aug. 9	7.6	1.9			
Aug. 16	8.7	1.0			
Aug. 29	10.1	0.3			
Sept. 3	<u>7.8</u>	<u>0.8</u>			
Mean	7.69	1.69			
Std. dev.	1.24	1.13			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Paugh LAKE	Renfrew COUNTY	Burns, Sherwood TOWNSHIP(S)
Watershed Area: 75	km ²	Shoreline : 18 km
Surface Area : 713	ha	Cottages : 77
Maximum Depth: 51.8	m	Resorts : 1 (7)
Volume : 100	x 10 ⁶ m ³	% Crown Land : 80

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	13
Total Nitrogen (µg/l)	:	310	Colour	12

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.8	5.5	5.2	5.3	5.2			5.4			
Min.											
Secchi (m)	4.3	5.2	4.6	4.6	4.7			4.0			
Mean Chloro. (µg/l)	1.6	0.9	0.9	1.3	1.5			1.0			
Max. Chloro. (µg/l)	2.3	1.3	1.5	2.9	2.1			1.6			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	5.6	0.5			
July 10	5.0	1.5			
July 16	5.3	-			
July 21	4.6	2.3			
Aug. 12	4.3	2.1			
Aug. 19	4.7	2.0			
Aug. 26	<u>4.3</u>	<u>1.2</u>			
Mean	4.83	1.60			
Std. dev.	0.50	0.68			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Pike	Lanark, Leeds		North Burgess, North Crosby TOWNSHIP(S)	
LAKE	COUNTY			
Watershed Area:	60.0	km ²	Shoreline	: 22.1 km
Surface Area :	316	ha	Cottages	: 143 (1974)
Maximum Depth:	32.6	m	Resorts	: 2 (38)
Volume :	26.58	x 10 ⁶ m ³	% Crown Land:	0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	35	Alkalinity (mg/l)	61
Total Nitrogen (µg/l)	:	480	Colour	23

	<u>1984</u> ¹	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.0	4.3	2.5	3.7	3.8	3.7	4.2	3.1	2.4	3.9	
Min.											
Secchi (m)	2.1	2.7	2.1	2.7	3.2	1.7	2.7	2.1	2.0	2.6	
Mean Chloro. (µg/l)	5.1	1.7	3.6	3.6	4.3	4.0	2.8	4.0	4.4	3.4	
Max. Chloro. (µg/l)	7.9	5.5	6.6	7.8	12.0	5.2	4.0	8.2	8.0	5.5	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	3.2	0.8			
July 8	3.7	7.9			
Aug. 6	<u>2.1</u>	<u>6.7</u>			
Mean	3	5.13			
Std. dev.	0.82	3.80			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Red Horse LAKE	Leeds COUNTY	Rear of Leeds & Lansdowne TOWNSHIP(S)
Watershed Area: 335	km ²	Shoreline : 12.9 km
Surface Area : 135	ha	Cottages : 24
Maximum Depth: 37	m	Resorts : 1 (16)
Volume : 15.55	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	21	Alkalinity (mg/l)	124
Total Nitrogen (µg/l)	:	566	Colour	21

1984² 1983² 1982² 1981² 1980 1979 1978 1977 1976 1975² 1974

East Basin

Mean

Secchi (m)	3.0	3.7	2.7	2.8							3.8
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Min.

Secchi (m)	1.7	2.0	2.0	2.5							2.6
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Mean Chloro.

(µg/l)	4.9	2.6	3.1	5.2							3.7
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Max. Chloro.

(µg/l)	8.4	4.4	4.1	10.0							4.9
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¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
East Basin					
July 27	4.2	4.3			
July 30	3.5	5.8			
Aug. 2	3.4	6.6			
Aug. 26	3.2	4.4			
Sept. 8	3.2	3.7			
Sept. 16	3.2	6.7			
Oct. 7	<u>3.7</u>	<u>3.1</u>			
Mean	3.49	4.94			
Std. dev.	0.37	1.43			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Red Horse LAKE	Leeds COUNTY	Rear of Leeds & Lansdowne TOWNSHIP(S)
Watershed Area: 330	km ²	Shoreline : 13.8 km
Surface Area : 167	ha	Cottages : 18 (1976)
Maximum Depth: 37	m	Resorts : 0
Volume : 15.07	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	25	Alkalinity (mg/l)	125
Total Nitrogen (µg/l)	:	584	Colour	23

	<u>1984</u> ²	<u>1983</u> ²	<u>1982</u> ²	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
West Basin											
Mean											
Secchi (m)	3.0	3.8	3.3	3.2	3.4	3.4				3.7	
Min.											
Secchi (m)	2.0	2.0	2.0	2.0	2.1	2.3				2.4	
Mean Chloro.											
(µg/l)	4.7	2.8	2.9	5.2	6.1	4.4				4.0	
Max. Chloro.											
(µg/l)	8.3	4.6	4.1	9.9	14	5.3				5.8	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
West Basin					
April 22	2.4	-			
May 21	2.7	3.8			
June 11	3.2	3.1			
June 17	3.7	2.4			
June 26	3.4	7.2			
July 4	2.7	6.1			
July 15	2.4	-			
July 29	3.4	4.7			
Aug. 7	3.5	7.0			
Aug. 16	2.9	5.1			
Aug. 27	2.9	5.2			
Sept. 3	3.4	3.0			
Sept. 9	3.0	4.9			
Sept. 23	3.4	3.9			
Oct. 7	<u>4.3</u>	<u>3.5</u>			
Mean	3.15	4.61			
Std. dev.	0.51	1.51			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Robertson LAKE		Lanark COUNTY		Lavant TOWNSHIP(S)
Watershed Area:	3.8	km ²	Shoreline	: 8.2 km
Surface Area :	64	ha	Cottages	: 38 + 13 houses
Maximum Depth:	30.5	m	Resorts	: 1 (12)
Volume :	3.80	x 10 ⁶ m ³	% Crown Land:	5

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	6	Alkalinity (mg/l)	73.7
Total Nitrogen (µg/l)	:	308	Colour	11

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u> ¹	<u>1978</u> ²	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	6.6	5.8	6.4	6.7	5.9	6.9	6.4	6.5			
Min.											
Secchi (m)	5.9	5.0	5.8	5.6	4.3	6.7	5.0	4.3			
Mean Chloro.											
(µg/l)	1.6	0.8	0.9	1.0	2.3	2.4	1.5	1.3			
Max. Chloro.											
(µg/l)	2.6	1.7	2.1	1.2	9.7	1.1	2.4	2.4			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 20	6.2	-			
June 29	6.6	-			
July 16	6.2	-			
Aug. 7	5.9	1.6			
Sept. 9	6.6	1.8			
Sept. 12	6.9	1.9			
Sept. 19	5.9	2.6			
Sept. 23	7.2	1.6			
Oct. 4	7.0	-			
Oct. 12	7.2	1.1			
Oct. 15	<u>7.0</u>	<u>0.8</u>			
Mean	6.61	1.63			
Std. dev.	0.49	0.58			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

St. Andrews LAKE	Frontenac COUNTY	Hinchinbrooke TOWNSHIP(S)
Watershed Area: 2.8	km ²	Shoreline : 7.6 km
Surface Area : 79	ha	Cottages : 20(1983)
Maximum Depth: 15.8	m	Resorts : 0
Volume : 5.05	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	21	Alkalinity (mg/l)	42
Total Nitrogen (µg/l)	:	575	Colour	29

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u> ¹	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.1	3.5	2.8	1.7	1.8		1.9	1.8			
Min.											
Secchi (m)	1.8	1.5	1.7	1.2	1.0		1.7	1.3			
Mean Chloro. (µg/l)	3.6	2.3	2.6	8.2	10.5		5.9	6.8			
Max. Chloro. (µg/l)	5.7	8.0	4.5	11.0	15		9.0	15.2			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 3	1.8	5.2			
July 2	2.9	2.9			
July 6	3.7	5.7			
July 15	2.9	2.3			
Aug. 12	3.5	3.0			
Aug. 19	3.4	2.0			
Sept. 2	3.2	3.5			
Sept. 23	<u>3.0</u>	<u>3.8</u>			
Mean	3.05	3.55			
Std. dev.	0.58	1.31			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

St. Peter LAKE	Hastings COUNTY	McClure TOWNSHIP(S)
Watershed Area: 67	km ²	Shoreline : 13.2 km
Surface Area : 234	ha	Cottages : 182
Maximum Depth: 28.7	m	Resorts : 10 (301)
Volume : 17.78	x 10 ⁶ m ³	% Crown Land : 10

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	11
Total Nitrogen (µg/l)	:	400	Colour	20

	<u>1984</u>	<u>1983</u>	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u> ²	<u>1978</u> ²	<u>1977</u> ²	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.4	3.9	3.6		3.2	3.4	3.9	4.8	3.8		
Min.											
Secchi (m)	3.7	3.5	3.2		2.7	2.5	2.8	3.0	2.6		
Mean Chloro.											
(µg/l)	1.6	1.0			2.2	1.8	1.6	1.1	1.8		
Max. Chloro.											
(µg/l)	2.6	1.0			3.1	2.9	2.2	2.0	2.7		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 12	5.2	0.3			
July 1	4.7	2.6			
July 8	4.3	1.7			
July 24	3.7	2.0			
Aug. 3	4.7	1.8			
Aug. 9	4.6	1.9			
Aug. 31	3.7	1.5			
Sept. 7	4.9	1.5			
Oct. 6	<u>4.0</u>	<u>1.2</u>			
Mean	4.42	1.61			
Std. dev.	0.53	0.63			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Salmon Trout LAKE	Hastings COUNTY	Monteagle TOWNSHIP(S)
Watershed Area: 9.25	km ²	Shoreline : 7.9 km
Surface Area : 100	ha	Cottages : 70
Maximum Depth: 14.0	m	Resorts : 0
Volume : 3.80	x 10 ⁶ m ³	% Crown Land: 21

WATER CHEMISTRY 1977

Total Phosphorus (µg/l)	:	17	Alkalinity (mg/l)	18.2
Total Nitrogen (µg/l)	:	406	Colour	10

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u> ²	<u>1975</u> ¹	<u>1974</u>
Mean											
Secchi (m)	3.6	3.9	3.7	3.5	3.3	3.2	4.2	3.7	3.4	3.0	3.7
Min.											
Secchi (m)	2.4	2.6	2.4	2.7	2.4	2.4	3.2	1.8	2.2	1.1	3.2
Mean Chloro.											
(µg/l)	2.7	3.1	2.4	3.7	11.7	7.4	5.0	4.1	6.6	7.9	1.4
Max. Chloro.											
(µg/l)	4.7	6.7	6.1	9.0	21.0	16	6.9	11.0	10.0	21.0	3.0

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 10	2.4	1.4			
July 2	4.9	0.3			
July 15	4.0	3.8			
Aug. 20	3.7	4.7			
Sept. 2	3.6	2.2			
Sept. 16	<u>3.0</u>	<u>3.7</u>			
Mean	3.6	2.68			
Std. dev.	0.86	1.67			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Sand LAKE		Leeds COUNTY		South Crosby TOWNSHIP(S)	
Watershed Area:	7.32	km ²	Shoreline	:	51.5 km
Surface Area :	732	ha	Cottages	:	110
Maximum Depth:	14.3	m	Resorts	:	3 (36)
Volume :	37.81	x 10 ⁶ m ³	% Crown Land :	:	0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	24	Alkalinity (mg/l)	76
Total Nitrogen (µg/l)	:	411	Colour	5

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	2.8	2.6			3.1					3.7	
Min.											
Secchi (m)	2.4	2.3			2.4					2.3	
Mean Chloro.											
(µg/l)	3.5	2.2			4.8					3.8	
Max. Chloro.											
(µg/l)	5.8	3.4			20.0					8.4	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 19	3.2	5.8			
July 2	2.9	2.8			
July 8	3.2	1.4			
July 15	2.9	-			
July 22	2.6	1.9			
July 29	2.9	2.9			
Aug. 7	2.6	3.2			
Aug. 15	2.6	5.4			
Aug. 23	2.6	3.5			
Aug. 31	2.6	2.2			
Sept. 6	2.7	3.2			
Sept. 14	3.0	4.2			
Sept. 18	2.4	4.9			
Sept. 27	2.7	3.8			
Oct. 2	2.4	-			
Oct. 11	<u>2.7</u>	<u>4.2</u>			
Mean	2.75	3.53			
Std. dev.	0.24	1.29			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Shabomeka LAKE	Frontenac COUNTY	Barrie TOWNSHIP(S)
Watershed Area: 40.9	km ²	Shoreline : 13.7 km
Surface Area : 268	ha	Cottages : 104
Maximum Depth: 32	m	Resorts : 0
Volume : 33.19	x 10 ⁶ m ³	% Crown Land : 50

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	8	Alkalinity (mg/l)	29
Total Nitrogen (µg/l)	:	298	Colour	14

	<u>1984</u>	<u>1983</u> ¹	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	5.2	4.8		4.4	5.1				5.1		
Min.											
Secchi (m)	4.3	4.3		3.9	3.2				3.6		
Mean Chloro.											
(µg/l)	2.1	1.4		2.1	2.5				1.8		
Max. Chloro.											
(µg/l)	2.6	2.0		2.6	3.6				3.3		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 12	5.5	-			
July 17	4.6	-			
July 24	4.9	2.3			
Aug. 2	5.2	2.1			
Aug. 8	5.8	2.6			
Aug. 20	5.2	2.5			
Aug. 31	5.8	1.3			
Aug. 27	<u>4.3</u>	<u>2.0</u>			
Mean	5.16	2.13			
Std. dev.	0.54	0.47			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Sharbot (West Basin) LAKE	Frontenac COUNTY	Olden TOWNSHIP(S)
Watershed Area: 88.27	km ²	Shoreline : 31.38 km
Surface Area : 684	ha	Cottages : 155 + 27 houses
Maximum Depth: 31.0	m	Resorts : 2 (25)
Volume : 55.32	x 10 ⁶ m ³	% Crown Land: 5

WATER CHEMISTRY 1979

Total Phosphorus (µg/l)	:	13	Alkalinity (mg/l)	67
Total Nitrogen (µg/l)	:	334	Colour	14

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u> ²	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	4.3	4.4	4.5	4.7	4.3	4.3	4.8	4.2	4.1	4.4	
Min.											
Secchi (m)	3.0	3.7	3.7	4.0	3.7	3.0	4.3	3.4	3.4	3.0	
Mean Chloro.											
(µg/l)	2.6	1.8	1.8	2.1	2.4	2.1	1.8	1.7	2.0	2.7	
Max. Chloro.											
(µg/l)	3.7	3.6	3.8	3.1	3.3	3.1	2.7	3.5	3.6	5.3	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 13	3.0	2.3			
June 27	4.7	3.7			
July 11	4.0	2.1			
July 25	4.3	2.1			
Aug. 8	4.7	3.3			
Aug. 22	4.3	2.6			
Sept. 5	<u>5.3</u>	<u>2.4</u>			
Mean	4.33	2.64			
Std. dev.	0.72	0.62			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Silver LAKE		Frontenac, Lanark COUNTY		Oso, South Sherbrooke TOWNSHIP(S)
Watershed Area:	29.7	km ²	Shoreline	: 9.2 km
Surface Area :	246	ha	Cottages	: 87 + 1 house
Maximum Depth:	24.4	m	Resorts	: 3 (185)
Volume :	24.91	x 10 ⁶ m ³	% Crown Land:	10

WATER CHEMISTRY 1979

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	93
Total Nitrogen (µg/l)	:	372	Colour	9

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u> ²	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.4	3.9	4.1	3.6	3.4	4.0	3.5	3.5		3.7	
Min.											
Secchi (m)	2.5	2.8	3.0	3.0	2.8	2.9	3.0	2.6		2.9	
Mean Chloro. (µg/l)	2.0	1.3	1.6	2.0	2.4	1.8	1.8	1.6		1.7	
Max. Chloro. (µg/l)	3.2	2.2	2.2	2.9	7.0	2.7	2.8	2.4		2.6	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Mid Lake					
June 25	3.0	2.0			
July 5	3.2	1.1			
July 15	2.5	-			
July 24	3.0	1.8			
July 30	3.2	1.9			
Aug. 7	3.7	2.2			
Aug. 13	3.9	2.3			
Aug. 21	3.6	1.9			
Aug. 28	3.4	2.3			
Sept. 3	3.4	1.7			
Sept. 11	3.3	3.2			
Sept. 26	3.8	1.8			
Oct. 6	<u>4.5</u>	<u>2.0</u>			
Mean	3.42	2.02			
Std. dev.	0.50	0.49			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Singleton LAKE	Leeds COUNTY	Rear of Leeds & Lansdowne TOWNSHIP(S)
Watershed Area: 295	km ²	Shoreline : 5.8 km
Surface Area : 77	ha	Cottages : 6
Maximum Depth: 13.4	m	Resorts : 2 (28)
Volume : 4.28	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	25	Alkalinity (mg/l)	126
Total Nitrogen (µg/l)	:	614	Colour	24

	<u>1984</u> ²	<u>1983</u> ²	<u>1982</u> ²	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	2.7	3.3	2.3							3.4	
Min.											
Secchi (m)	1.3	1.5	1.9							2.3	
Mean Chloro.											
(µg/l)	5.1	4.0	3.6							4.7	
Max. Chloro.											
(µg/l)	8.5	6.2	7.4							7.4	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 27	2.4	2.1			
July 10	2.1	8.5			
July 17	2.4	5.9			
July 31	3.0	6.8			
Aug. 24	3.4	5.0			
Sept. 4	<u>3.7</u>	<u>2.3</u>			
Mean	2.83	5.1			
Std. dev.	0.63	2.53			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Skootamatta - Upper Lake (West Basin) LAKE	Lennox & Addington COUNTY	Anglesea TOWNSHIP(S)
Watershed Area: 49.34 km ²	Shoreline : 9.6 km	
Surface Area : 456 ha	Cottages : 36 (1974)	
Maximum Depth: 29.3 m	Resorts : 0	
Volume : x 10 ⁶ m ³	% Crown Land :	

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	17	Alkalinity (mg/l)	9.2
Total Nitrogen (µg/l)	:	363	Colour	20

	<u>1984</u>	<u>1983</u>	<u>1982</u> ¹	<u>1981</u>	<u>1980</u> ¹	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u> ²
Mean											
Secchi (m)	3.3	3.4	4.0		3.6					3.7	4.2
Min.											
Secchi (m)	2.9	2.9	3.0		3.4					3.0	
Mean Chloro. (µg/l)	2.0	1.0	2.3		2.1					3.5	2.0
Max. Chloro. (µg/l)	3.0	1.7	2.8		2.8					6.5	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 14	2.9	1.3			
June 14	2.9	2.3			
June 30	2.9	1.5			
July 9	2.9	2.2			
July 24	3.1	3.0			
Aug. 19	4.4	2.1			
Sept. 21	3.8	1.5			
Oct. 4	<u>3.7</u>	<u>1.7</u>			
Mean	3.33	1.95			
Std. dev.	0.57	0.56			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Steenburg LAKE	Hastings COUNTY	Tudor, Limerick TOWNSHIP(S)
Watershed Area: 21.5	km ²	Shoreline : 13.7 km
Surface Area : 277	ha	Cottages : 203
Maximum Depth: 20.1	m	Resorts : 0
Volume : 15.32	x 10 ⁶ m ³	% Crown Land: 0

WATER CHEMISTRY 1976

Total Phosphorus (µg/l)	:	10	Alkalinity (mg/l)	52.5
Total Nitrogen (µg/l)	:	352	Colour	8

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u> ²	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.8	4.3				4.5	4.3	4.7	4.6		
Min.											
Secchi (m)	3.4	3.7				3.7	3.7	3.7	3.2		
Mean Chloro. (µg/l)	2.4	1.6				2.1	2.0	2.0	1.6		
Max. Chloro. (µg/l)	3.0	3.4				4.6	3.5	3.7	2.8		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Southeast Bay			West Bay		
July 2	4.0	3.0	July 2	4.0	2.7
			July 8	4.0	1.5
			July 15	3.4	1.8
			July 22	3.4	2.8
			Aug. 26	3.7	1.3
			Sept. 3	4.0	1.8
			Sept. 9	3.7	2.4
			Sept. 16	4.0	2.8
North Bay			Mean	3.78	2.14
July 2	4.0	1.4	Std. dev.	0.27	0.61
July 29	3.4	2.0			
Aug. 6	4.0	2.5			
Aug. 12	3.4	2.5			
Mean	3.70	2.1			
Std. dev.	0.35	0.52			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Stoco LAKE	Hastings COUNTY	Hungerford TOWNSHIP(S)
Watershed Area: 2230	km ²	Shoreline : 16 km
Surface Area : 500	ha	Cottages : 90
Maximum Depth: 9.76	m	Resorts : 4 (26)
Volume : 19.93	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	38	Alkalinity (mg/l)	88
Total Nitrogen (µg/l)	:	775	Colour	31

	<u>1984</u> ²	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u> ²	<u>1973</u> ²	<u>1972</u> ²
Mean											
Secchi (m) 1.2								2.0	2.4	1.5	1.3
Min.											
Secchi (m) 0.7								0.8	2.0	0.8	1.0
Mean Chloro.											
(µg/l) 16.7								13.4	3.9	15	6.0
Max. Chloro.											
(µg/l) 24.4								46	7.3	45	10.0

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Station 1			Station 2		
Aug. 28	0.8	24.4	Aug. 28	0.8	21.3
Sept. 4	0.7	9.7	Sept. 4	0.7	6.3
Sept. 12	1.1	13.7	Sept. 12	1.1	12.5
Sept. 19	1.0	16.2	Sept. 19	1.0	13.8
Sept. 24	<u>1.4</u>	<u>18.5</u>	Sept. 24	<u>1.4</u>	<u>17.4</u>
Mean	1.0	16.50	Mean	1.0	14.26
Std. dev.	0.27	5.49	Std. dev.	0.27	5.61

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Sydenham LAKE	Frontenac COUNTY	Loughborough TOWNSHIP(S)
Watershed Area: 49	km ²	Shoreline : 42 km
Surface Area : 451	ha	Cottages : 152
Maximum Depth: 37	m	Resorts : 2 (51)
Volume : 32.05	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1976

Total Phosphorus (µg/l)	:	34	Alkalinity (mg/l)	111
Total Nitrogen (µg/l)	:	501	Colour	

	<u>1984</u>	<u>1983</u>	<u>1982</u> ¹	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.8	3.5	3.7		4.2	3.6	3.6	5.0			
Min.											
Secchi (m)	2.4	2.0	3.2		3.4	2.6	3.2	3.8			
Mean Chloro.											
(µg/l)	2.8	1.9	2.4		3.2	3.0	2.1	3.4			
Max. Chloro.											
(µg/l)	5.1	5.1	3.3		3.7	5.2	3.1	5.3			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
East End					
June 26	3.5	5.1			
July 5	4.6	1.9			
July 12	3.7	1.9			
July 21	4.6	2.2			
July 31	2.7	3.1			
Aug. 9	6.4	3.0			
Aug. 24	2.4	2.5			
Sept. 9	3.0	3.1			
Oct. 2	<u>3.0</u>	<u>2.6</u>			
Mean	3.77	2.82			
Std. dev.	1.25	0.98			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Temperance LAKE		Leeds COUNTY		Rear of Yonge & Escott TOWNSHIP(S)
Watershed Area:	7.88	km ²	Shoreline	: 11.74 km
Surface Area :	119	ha	Cottages	: 24
Maximum Depth:	4.57	m	Resorts	: 0
Volume :	3.13	x 10 ⁶ m ³	% Crown Land:	0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	21	Alkalinity (mg/l)	68
Total Nitrogen (µg/l)	:	505	Colour	16

	<u>1984</u> ²	<u>1983</u> ²	<u>1982</u> ²	<u>1981</u> ²	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.2	2.7	1.8	1.4	1.9	2.6	2.2	1.2	1.9		
Min.											
Secchi (m)	1.5	1.7	1.1	1.0	1.5	2.3	1.5	0.3	1.6		
Mean Chloro.											
(µg/l)	3.6	2.0	4.5	7.8	6.0	3.1	2.8	8.9	3.6		
Max. Chloro.											
(µg/l)	9.8	3.4	5.8	12.0	8.8	6.9	4.9	21.0	19.0		

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
West End			Mid Lake		
June 26	1.5	9.8	June 26	2.1	3.7
July 3	1.5	2.0	July 10	1.8	3.1
July 29	1.8	4.6	July 18	1.5	3.5
Aug. 10	1.5	3.0	Aug. 3	1.5	3.1
Aug. 24	1.8	2.7	Aug. 17	1.8	2.5
Sept. 14	<u>2.1</u>	<u>2.5</u>	Sept. 1	<u>1.8</u>	<u>2.5</u>
Mean	1.70	4.1	Mean	1.75	3.07
Std. dev.	0.24	2.93	Std. dev.	0.23	0.50

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Thirteen Island LAKE	Frontenac COUNTY	Bedford, Hinchin- brooke, Lough- borough, Portland TOWNSHIP(S)
Watershed Area: 40	km ²	Shoreline : 13.8 km
Surface Area : 132	ha	Cottages : 60
Maximum Depth: 25.9	m	Resorts : 2 (4)
Volume : 6.63	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1984

Total Phosphorus (µg/l)	:	17	Alkalinity (mg/l)	94
Total Nitrogen (µg/l)	:	449	Colour	9

	<u>1984</u> ²	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	3.8	3.3								4.3	
Min.											
Secchi (m)	3.0	2.7								3.0	
Mean Chloro.											
(µg/l)	2.9	2.3								2.8	
Max. Chloro.											
(µg/l)	6.2	3.0								5.6	

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 10	3.4	2.4			
June 17	3.7	2.0			
June 24	3.0	-			
July 1	3.4	-			
July 8	3.4	4.1			
July 15	3.4	3.1			
July 22	3.7	1.6			
July 29	3.4	1.9			
Aug. 19	3.4	4.5			
Aug. 26	3.4	3.6			
Sept. 3	3.2	2.7			
Sept. 9	3.0	5.7			
Sept. 23	3.4	3.1			
Sept. 30	4.6	1.5			
Oct. 8	4.3	3.2			
Oct. 14	<u>4.3</u>	<u>3.7</u>			
Mean	3.56	3.08			
Std. dev.	0.46	1.19			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Troy LAKE	Leeds COUNTY	South Crosby TOWNSHIP(S)
Watershed Area: 8.17	km ²	Shoreline : 8.5 km
Surface Area : 119	ha	Cottages : 16 (1974)
Maximum Depth: 5.2	m	Resorts : 0
Volume : 2.74	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	23	Alkalinity (mg/l)	58
Total Nitrogen (µg/l)	:	413	Colour	15

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>
Mean											
Secchi (m)	2.4	2.0	2.4	2.9	2.3	2.0	1.9	1.7		2.1	
Min.											
Secchi (m)	1.8	0.9	1.2	2.1	1.5	1.2	1.2	1.2		1.4	
Mean Chloro. (µg/l)	5.3	7.1	5.6	3.9	6.7	8.0	7.4	6.9		6.2	
Max. Chloro. (µg/l)	10.2	16.8	20.3	6.3	13	17.2	13.9	15.6		12.0	

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
May 21	2.9	2.9			
June 3	2.9	3.5			
June 10	2.7	3.6			
June 17	2.1	5.6			
July 2	2.6	2.5			
July 8	2.6	1.0			
July 15	2.3	8.7			
July 22	2.3	7.1			
July 29	2.0	10.2			
Aug. 12	1.8	8.9			
Aug. 19	1.9	6.6			
Aug. 26	2.4	4.5			
Sept. 3	2.4	4.1			
Sept. 9	1.8	5.8			
Sept. 24	2.4	6.9			
Sept. 30	<u>3.1</u>	<u>3.0</u>			
Mean	2.39	5.31			
Std. dev.	0.40	2.61			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Twin Sister (East Basin) LAKE	Hastings COUNTY	Marmora TOWNSHIP(S)
Watershed Area: 6.9	km ²	Shoreline : 4.4 km
Surface Area : 51	ha	Cottages : 20
Maximum Depth: 8.54	m	Resorts : 0
Volume : 1.74	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	22	Alkalinity (mg/l)	64
Total Nitrogen (µg/l)	:	490	Colour	18

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u> ¹	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.8	3.5	3.4	3.5	3.9						
Min.											
Secchi (m)	2.7	3.0	2.7	3.2	3.2						
Mean Chloro.											
(µg/l)	3.3	2.2	1.5	3.3	3.5						
Max. Chloro.											
(µg/l)	6.2	3.7	2.7	3.3	6.2						

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 3	3.0	2.6			
June 24	2.7	3.5			
July 2	7.6	1.6			
Aug. 11	3.7	5.2			
Sept. 9	3.4	3.3			
Sept. 19	3.7	6.2			
Sept. 29	3.4	1.4			
Oct. 13	3.4	2.6			
Nov. 11	<u>3.0</u>	<u>-</u>			
Mean	3.77	3.3			
Std. dev.	1.48	1.67			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Twin Sister (West Basin) LAKE	Hastings COUNTY	Marmora TOWNSHIP(S)
Watershed Area: 8.7	km ²	Shoreline : 3.2 km
Surface Area : 35	ha	Cottages : 21
Maximum Depth: 13.4	m	Resorts : 0
Volume : 1.96	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	59
Total Nitrogen (µg/l)	:	470	Colour	13

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	3.5	3.5	3.6	4.4	3.9			3.6			
Min.											
Secchi (m)	3.2	3.0	3.2	3.3	3.5			2.7			
Mean Chloro. (µg/l)	3.1	1.7	2.2	1.9	2.9			1.9			
Max. Chloro. (µg/l)	4.3	3.7	3.1	4.2	6.4			3.7			

¹ based on less than 6 measurements
² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
June 17	3.4	1.6			
July 1	3.4	2.7			
July 22	3.2	3.1			
July 29	-	4.2			
Aug. 5	3.4	3.4			
Aug. 21	4.0	4.3			
Aug. 28	3.7	3.6			
Sept. 3	<u>3.7</u>	<u>2.0</u>			
Mean	3.54	3.11			
Std. dev.	0.27	0.97			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

West LAKE	Prince Edward COUNTY	Hallowell TOWNSHIP(S)
Watershed Area: 119	km ²	Shoreline : 12.2 km
Surface Area : 502	ha	Cottages : 82+104 houses
Maximum Depth: 4.6	m	Resorts : 22(139)
Volume : 9.94	x 10 ⁶ m ³	% Crown Land : 1

WATER CHEMISTRY 1980

Total Phosphorus (µg/l)	:	18	Alkalinity (mg/l)	113
Total Nitrogen (µg/l)	:	586	Colour	9

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u> ²	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	1.4	1.2			2.2						
Min.											
Secchi (m)	1.0	0.9			1.0						
Mean Chloro. (µg/l)	5.4	3.3			4.3						
Max. Chloro. (µg/l)	11.6	5.0			6.8						

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Vicinity of Sheba's Island					
June 25	1.4	6.6			
July 5	2.1	1.3			
July 9	1.4	2.0			
July 17	1.3	-			
July 25	1.3	4.5			
July 31	1.4	5.5			
Aug. 8	1.6	5.3			
Aug. 13	1.3	6.6			
Aug. 28	<u>1.0</u>	<u>11.6</u>			
Mean	1.42	5.43			
Std. dev.	0.30	3.17			

SELF-HELP PROGRAM SOUTHEASTERN REGION 1984

White LAKE	Lanark & Renfrew COUNTY		Darling, Bagot & McNab TOWNSHIP(S)	
Watershed Area:	211	km ²	Shoreline	: 97.8 km
Surface Area :	2269	ha	Cottages	: 449 + 5 houses
Maximum Depth:	9.2	m	Resorts	: 10 (508)
Volume :	74.74	x 10 ⁶ m ³	% Crown Land:	50

WATER CHEMISTRY 1975

Total Phosphorus (µg/l)	:	22	Alkalinity (mg/l)	101
Total Nitrogen (µg/l)	:	455	Colour	12

	<u>1984</u>	<u>1983</u>	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u> ²	<u>1974</u>	<u>1973</u>
Mean												
Secchi (m)	2.7	2.8	2.4	2.6	2.7	3.0	3.2	2.8	2.4	3.2	3.0	2.6
Min.												
Secchi (m)	2.0	1.8	1.8	1.8	1.7	2.4	2.4	1.9	1.1	2.4	2.1	1.6
Mean Chloro. (µg/l)	3.6	2.9	3.4	3.2	5.3	3.0	3.7	3.6	7.1	3.8	2.2	4.3
Max. Chloro. (µg/l)	8.1	6.7	10.1	8.6	23.5	6.7	12.4	7.9	26.0	6.2	4.9	10.5

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
Station 1			Station 2		
May 23	2.7	2.0	May 23	2.7	2.4
May 31	2.9	0.5	May 31	3.0	1.2
June 5	3.4	1.5	June 5	3.8	2.1
June 14	3.2	1.6	June 14	2.9	1.9
June 26	2.3	2.9	June 26	2.3	3.7
July 4	3.0	3.1	July 4	3.2	2.7
July 18	2.9	-	July 18	3.0	-
July 25	2.1	4.2	July 25	2.3	4.2
Aug. 1	2.4	4.4	Aug. 1	2.6	5.1
Aug. 8	2.7	3.4	Aug. 8	2.7	3.7
Aug. 15	2.1	4.8	Aug. 15	2.3	4.1
Aug. 21	2.3	3.2	Aug. 21	2.3	3.4
Aug. 29	3.2	8.1	Aug. 29	3.2	5.2
Sept. 5	2.1	4.1	Sept. 5	2.0	7.1
Sept. 12	2.7	5.4	Sept. 12	2.7	6.0
Sept. 19	2.3	4.3	Sept. 19	2.1	3.7
Oct. 10	<u>3.2</u>	-	Oct. 10	<u>2.7</u>	<u>2.5</u>
Mean	2.68	3.57	Mean	2.69	3.69
Std. dev.	0.44	1.85	Std. dev.	0.46	1.59

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Whitefish LAKE	Leeds COUNTY	S. Crosby, Rear of Leeds & Lansdowne TOWNSHIP(S)
Watershed Area: 660	km ²	Shoreline : 35 km
Surface Area : 408.2	ha	Cottages : 120
Maximum Depth: 7.0	m	Resorts : 3 (113)
Volume : 11.4	x 10 ⁶ m ³	% Crown Land : 0

WATER CHEMISTRY 1983

Total Phosphorus (µg/l)	:	25	Alkalinity (mg/l)	80
Total Nitrogen (µg/l)	:	555	Colour	17

	<u>1984</u>	<u>1983</u> ²	<u>1982</u>	<u>1981</u>	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u>	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	2.3	2.9			2.6	3.0	2.7	2.6			
Min.											
Secchi (m)	1.8	1.7			1.2	2.4	1.5	1.5			
Mean Chloro. (µg/l)	3.4	4.3			3.8	2.6	3.4	4.4			
Max. Chloro. (µg/l)	4.4	17.4			7.6	4.0	7.1	12.0			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
July 8	1.8	3.0			
July 23	2.7	1.6			
July 30	2.7	2.7			
Aug. 5	2.7	3.3			
Aug. 13	2.3	3.3			
Aug. 19	2.3	3.4			
Aug. 27	2.0	4.2			
Sept. 3	2.3	4.3			
Sept. 9	2.1	4.4			
Sept. 16	<u>2.4</u>	<u>4.2</u>			
Mean	2.33	3.44			
Std. dev.	0.31	0.88			

SELF-HELP PROGRAM
SOUTHEASTERN REGION
1984

Wollaston LAKE		Hastings COUNTY		Wollaston TOWNSHIP(S)	
Watershed Area:	124	km ²	Shoreline	:	13 km
Surface Area :	368	ha	Cottages	:	178+27 houses
Maximum Depth:	32	m	Resorts	:	4 (239)
Volume :	34.67	x 10 ⁶ m ³	% Crown Land:	:	12

WATER CHEMISTRY 1977

Total Phosphorus (µg/l)	:	11	Alkalinity (mg/l)	67.5
Total Nitrogen (µg/l)	:	360	Colour	12

	<u>1984</u> ¹	<u>1983</u> ¹	<u>1982</u>	<u>1981</u> ¹	<u>1980</u>	<u>1979</u>	<u>1978</u>	<u>1977</u> ²	<u>1976</u>	<u>1975</u>	<u>1974</u>
Mean											
Secchi (m)	4.1	3.7		4.8	5.4		4.7	5.1			
Min.											
Secchi (m)	3.7	2.4		4.6	5.0		4.0	3.4			
Mean Chloro.											
(µg/l)	2.0	1.0		1.3	1.2		2.1	1.2			
Max. Chloro.											
(µg/l)	2.7	1.3		1.4	1.5		4.4	2.3			

¹ based on less than 6 measurements

² includes Recreational Lake Survey Program data

<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>	<u>Date</u>	<u>Secchi (m)</u>	<u>Chloro. (µg/l)</u>
South End			North End		
May 27	3.7	1.0	May 27	3.7	-
July 2	4.1	1.7			
Aug. 5	3.8	2.5			
Sept. 18	<u>4.9</u>	<u>2.7</u>			
Mean	4.13	1.98			
Std. dev.	0.54	0.78			

